

3 1761 11652421 6

CAZON
EAB
-H26



ENVIRONMENTAL ASSESSMENT BOARD

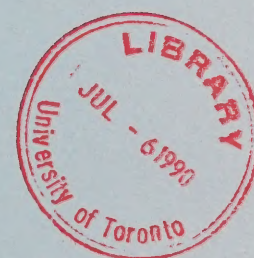
VOLUME: 216

DATE: Tuesday, June 19, 1990

BEFORE:

A. KOVEN, Chairman

E. MARTEL, Member



FOR HEARING UPDATES CALL (TOLL-FREE): 1-800-387-8810

FARR
ASSOCIATES &
REPORTING INC.

(416) 482-3277

2300 Yonge St., Suite 709, Toronto, Canada M4P 1E4

CA20N
EAB
-H26



ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 216

DATE: Tuesday, June 19, 1990

BEFORE:

A. KOVEN, Chairman

E. MARTEL, Member



FOR HEARING UPDATES CALL (TOLL-FREE): 1-800-387-8810

FARR &
ASSOCIATES
REPORTING INC.

(416) **482-3277**

2300 Yonge St., Suite 709, Toronto, Canada M4P 1E4



Digitized by the Internet Archive
in 2023 with funding from
University of Toronto

<https://archive.org/details/31761116524216>

HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental
Assessment for Timber Management on Crown
Lands in Ontario;

- and -

IN THE MATTER OF a Notice by the
Honourable Jim Bradley, Minister of the
Environment, requiring the Environmental
Assessment Board to hold a hearing with
respect to a Class Environmental
Assessment (No. NR-AA-30) of an
undertaking by the Ministry of Natural
Resources for the activity of timber
management on Crown Lands in Ontario.

Hearing held at the offices of the Ontario
Highway Transport Commission, Britannica
Building, 151 Bloor Street West, 10th Floor,
Toronto, Ontario, on Tuesday, June
19th, 1990, commencing at 9:00 a.m.

VOLUME 216

BEFORE:

MRS. ANNE KOVEN
MR. ELIE MARTEL

Chairman
Member

A P P E A R A N C E S

MR. V. FREIDIN, Q.C.)	
MS. C. BLASTORAH)	MINISTRY OF NATURAL
MS. K. MURPHY)	RESOURCES
MR. B. CAMPBELL)	
MS. J. SEABORN)	MINISTRY OF ENVIRONMENT
MS. B. HARVIE)	
MR. R. TUER, Q.C.)	ONTARIO FOREST INDUSTRIES
MR. R. COSMAN)	ASSOCIATION and ONTARIO
MS. E. CRONK)	LUMBER MANUFACTURERS'
MR. P.R. CASSIDY)	ASSOCIATION
MR. H. TURKSTRA	ENVIRONMENTAL ASSESSMENT
	BOARD
MR. E. HANNA)	ONTARIO FEDERATION OF
DR. T. QUINNEY)	ANGLERS & HUNTERS
MR. D. HUNTER)	NISHNAWBE-ASKI NATION
MS. N. KLEER)	and WINDIGO TRIBAL COUNCIL
MR. J.F. CASTRILLI)	
MS. M. SWENARCHUK)	FORESTS FOR TOMORROW
MR. R. LINDGREN)	
MR. P. SANFORD)	KIMBERLY-CLARK OF CANADA
MS. L. NICHOLLS)	LIMITED and SPRUCE FALLS
MR. D. WOOD)	POWER & PAPER COMPANY
MR. D. MacDONALD	ONTARIO FEDERATION OF
	LABOUR
MR. R. COTTON	BOISE CASCADE OF CANADA
	LTD.
MR. Y. GERVAIS)	ONTARIO TRAPPERS
MR. R. BARNES)	ASSOCIATION
MR. R. EDWARDS)	NORTHERN ONTARIO TOURIST
MR. B. McKERCHER)	OUTFITTERS ASSOCIATION

APPEARANCES: (Cont'd)

MR. L. GREENSPOON)	NORTHWATCH
MS. B. LLOYD)	
MR. J.W. ERICKSON, Q.C.)	RED LAKE-EAR FALLS JOINT
MR. B. BABCOCK)	MUNICIPAL COMMITTEE
MR. D. SCOTT)	NORTHWESTERN ONTARIO
MR. J.S. TAYLOR)	ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL)	GREAT LAKES FOREST
MR. S.M. MAKUCH)	
MR. J. EBBS	ONTARIO PROFESSIONAL FORESTERS ASSOCIATION
MR. D. KING	VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. D. COLBORNE)	GRAND COUNCIL TREATY #3
MS. S.V. BAIR-MUIRHEAD)	
MR. R. REILLY	ONTARIO METIS & ABORIGINAL ASSOCIATION
MR. H. GRAHAM	CANADIAN INSTITUTE OF FORESTRY (CENTRAL ONTARIO SECTION)
MR. G.J. KINLIN	DEPARTMENT OF JUSTICE
MR. S.J. STEPINAC	MINISTRY OF NORTHERN DEVELOPMENT & MINES
MR. M. COATES	ONTARIO FORESTRY ASSOCIATION
MR. P. ODORIZZI	BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY

APPEARANCES: (Cont'd)

MR. R.L. AXFORD	CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS
MR. M.O. EDWARDS	FORT FRANCES CHAMBER OF COMMERCE
MR. P.D. McCUTCHEON	GEORGE NIXON
MR. C. BRUNETTA	NORTHWESTERN ONTARIO TOURISM ASSOCIATION

I N D E X O F P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>WILSON EEDY,</u> <u>KARL SCHIEFER,</u> <u>GORDON R. CRAIG, Recalled</u>	38994
Continued Cross-Examination by Mr. Hanna	38994

(v)

I N D E X O F E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
1258	Paper entitled: Habitat Modeling in the Wildlife Sector by Kansas and Raine.	39123

1 ---Upon commencing at 9:00 a.m.

2 MADAM CHAIR: Good morning. Please be
3 seated.

4 Good morning, Mr. Hanna.

5 MR. HANNA: Good morning, Madam Chair.

6 MADAM CHAIR: Mr. Hanna, why don't we go
7 until about twenty to ten, we'll take a break at that
8 point.

9 MR. HANNA: Twenty to ten.

10 MADAM CHAIR: Twenty after ten.

11 MR. HANNA: Fine, Madam Chair.

12 MADAM CHAIR: We'll take a break and then
13 we'll have our lunch break at 12:00.

14 MR. HANNA: All right.

15 WILSON EEDY,
16 KARL SCHIEFER,
GORDON R. CRAIG, Recalled

17 CONTINUED CROSS-EXAMINATION BY MR. HANNA:

18 Q. Dr. Eedy, I would like to begin with
19 you, if I could. I would like to first turn to the
20 witness statement and on page (xi) there's a signature
21 page, and I note under your name I see: Wilson Eedy
22 Ph.D., CWB. Can you explain to me what CWB stands for?

23 DR. EEDY: A. It stands for certified
24 wildlife biologist.

25 Q. How does one become a certified

1 wildlife biologist?

2 A. One -- this through the Wildlife
3 Society in the United States and certification is
4 basically related to your work history plus your
5 academic history that you have to submit.

6 Q. Why did you become a certified
7 wildlife biologist?

8 A. Because it's -- I feel that
9 certification is an important professional factor in
10 working in the field.

11 Q. Can the certified wildlife biologist
12 designation be taken from you?

13 A. I believe it can, yes.

14 Q. Under what conditions?

15 A. If you're not working as a
16 professional.

17 Q. Or if you demonstrate behaviour that
18 is not becoming of a certified wildlife biologist, can
19 that also be a basis for you to lose it?

20 A. I believe that's correct.

21 Q. Does the Wildlife Society provide a
22 Code of Ethics to direct you in your professional
23 conduct?

24 A. Yes, they do.

25 Q. If you were to see the initials CWB

1 after an biologist's name and you knew nothing about
2 her other than her name and that she had the initials
3 CWB after her name, would you feel any more confident
4 in her level of qualifications capabilities if it
5 wasn't there?

6 A. To a certain extent I would, yes.

7 Q. So it follows that the designation
8 provides some minimum standard of qualifications, but
9 does not provide assurance of the degree of expertise
10 beyond that minimum; is that a fair statement?

11 A. That's fair. I think on the -- I
12 would also like to say that I know many people who are
13 excellent wildlife biologists who have not been
14 certified as well.

15 Q. Right.

16 A. So it's not something that one has to
17 be.

18 Q. It's not mandatory in Ontario at the
19 present time to practice wildlife biology?

20 A. No.

21 Q. I take it however that since you've
22 seen fit to become a certified wildlife biologist, that
23 you feel this is a reasonable approach to provide the
24 public with some assurance of you and other wildlife
25 biologists --practising biologists having at least

1 minimum qualifications in their field.

2 A. Yes, I think it's very important.

3 Q. I would like now to move to the
4 witnesses statement, the substance of the witness
5 statement. Before I do, I just want to make sure I'm
6 not misinterpreting things, and so I've got a couple of
7 just definitional things here I'd like to sort out.

8 The first is, I didn't see reference in
9 your witness statement to the matter of stand
10 conversion impacts on wildlife. Is it in your witness
11 statement and I missed it, the matter of stand
12 conversions?

13 A. Those words aren't. You'd have to
14 define what you mean by that too.

15 Q. Stand conversion is the procedure
16 through management intervention, one of the four
17 activities; that is, timber management activities that
18 we are considering here, through those activities
19 changing the structure of the forest stand.

20 Typically it's going either from a
21 hardwood stand or a mixed wood stand to a conifer
22 dominated stand; that is, the normal way the term has
23 been used so far I think in the hearing.

24 Now, have you dealt with that, the
25 impacts of stand conversion in your witness statement

1 and, if you have, where so?

2 A. I don't think it's specifically in
3 any place. I think -- not specifically, no.

4 Q. Okay. Another issue that I didn't
5 see addressed and perhaps it's there, and that is the
6 matter of cumulative impacts across the area of the
7 landscape. Have you dealt with cumulative impacts?

8 A. I think we looked at a number of the
9 things that could be seen as cumulative impacts. I
10 don't think we dealt with it as one section or anything
11 in the report.

12 Q. Okay. And the last one that I wish
13 to make sure that there isn't a specific section that I
14 should be looking at and that's the impacts with
15 respect to maintenance or enhancement of biodiversity?
16 Is there a specific section of your report that you
17 deal with that issue?

18 A. Well, diversity was certainly dealt
19 with again in a number of areas in the report.

20 Q. The only -- sorry, go ahead.

21 A. I think diversity is one of the
22 important issues that has been talked about in I guess
23 the whole section of the wildlife report, but
24 specifically in the discussions of disturbances.

25 Q. Okay. Well, we'll come back to that.

1 Now, several other just general statements here before
2 we move into the meat. First of all, throughout your
3 witness statement you refer frequently to the concept
4 of habitat; correct?

5 A. Yes.

6 Q. It's a common thread throughout your
7 witness statement. Is it fair to say that habitat, in
8 your view, relates to the structure of the forest in
9 terms of the species composition, age-class
10 distribution and the vertical and horizontal
11 distribution of stands over an entire forest management
12 unit?

13 A. I think I would define habitat
14 somewhat even more broadly because I don't think it has
15 to be a forest.

16 Q. Okay. Well, I was suggesting --

17 A. Habitat is basically the features of
18 the land which affect the ability of animals to live
19 and prosper in different stages of their life cycle.
20 Habitat could be a beaver pond, and that's not
21 necessarily the forest.

22 Q. And with respect to those matters,
23 those that are under the influence -- direct influence
24 of the activities being requested for approval here,
25 the four, those that I've described are the ones that

1 are essential; would you agree?

2 A. Yes. Again stating though that, you
3 know, one of the central themes of this whole thing is:
4 I guess it depends on how you define forest, but is
5 that some of the habitat values and the younger success
6 succession species which I wouldn't define as a forest
7 are very high.

8 Q. Some foresters would call that a
9 regenerating forest - and I would too - but that's
10 fine, I don't mind using your words, but that would
11 ultimately become a forest and that is part of forest
12 succession?

13 A. Yes.

14 Q. And that's an age-class distribution,
15 it maybe a very young age-class, but it is a forest
16 age-class?

17 A. Yeah.

18 Q. Now, when you speak of habitat, are
19 you speaking solely of areas of concern or are you
20 speaking of the forest landscape as a whole?

21 A. I'm speaking of it -- well, I guess
22 in different circumstances in both ways but, in
23 general, habitat is the forest as a whole.

24 Q. And I believe your witness statement
25 makes it very clear that you agree that the four

1 proposed timber management activities have a profound
2 effect on the tree layer and related understorey
3 species in the forest; agreed?

4 A. Yes.

5 Q. Now, the Board has heard much
6 evidence on the long-term nature of forest dynamics and
7 wood supply forecasting. Does it follow that since
8 wildlife habitat depends on, at least in part, the same
9 forest structure that the supply -- that supply
10 wildlife habitat is affected by the same long-term
11 forest dynamics as wood supply?

12 A. Yes, in general.

13 Q. Now, just as an example, if we were
14 to anticipate that a major demand in terms of, for
15 example, late winter cover for moose was necessary in a
16 particular area, say 15 years down the road, and all of
17 our stands were in a young and early successional
18 stage, it may not be physically possible to achieve the
19 necessary habitat in the period of time which is
20 required; is that a reasonable proposition?

21 A. You mean in a 15-year period?

22 Q. We're looking 15 years down the road
23 and we're saying: 15 years down the road I need some
24 late winter cover in that area. If all I have is
25 regenerating young stands, I can't get late winter

1 cover I can potentially not be able to achieve the
2 demand I have in terms of wildlife habitat in that
3 area.

4 A. Well, I think there are a lot of
5 variables involved. It would depend on species and
6 ages and growth rates in the area and this sort of
7 thing.

8 Q. All those things, right. But it's
9 not inconceivable to you to have that --

10 A. In 15 years?

11 Q. To look down the road 15 years and
12 say: Well, I need mature forest, but I can't produce
13 it.

14 A. You mean, can I predict in 15 years.
15 I think you can predict what the forest is going to be,
16 there are ways of doing that.

17 Q. And you can predict what wildlife
18 requirements might be for habitat?

19 A. Yeah.

20 Q. Now, we cannot anticipate such gaps,
21 both in habitat, unless some type of forward-looking
22 analysis is carried out; would you agree? It's a
23 truism in a sense; isn't it?

24 A. Yeah.

25 Q. Is it not possible then to have what

1 I would call future habitat supply gaps in the same
2 sense as we may have future wood supply gaps? I'm not
3 saying it's likely; I'm just asking, is it possible?

4 A. No, the possibility is there. I
5 think from looking at what has happened both in terms
6 of timber management and wildlife populations that, you
7 know, one would have to anticipate some substantial
8 increases in harvesting and a number of other factors
9 to see that happening.

10 Q. Are you familiar with in other
11 jurisdictions such as Newfoundland, New Brunswick and
12 other provinces in Canada where they have projected
13 serious habitat supply gaps for some species due to
14 timber management?

15 A. I know of projections of habitat
16 problems for marten in Newfoundland.

17 Q. So it isn't just a hypothetical, it
18 is in fact a possibility, a real possibility for some
19 species?

20 A. For some species it's a possibility.

21 Q. Is one way to anticipate and plan for
22 such habitat shortages to use predictive forest stand
23 habitat supply models to predict future habitat supply?

24 MADAM CHAIR: Excuse me, Mr. Hanna, is
25 that predictive forest stand --

1 MR. HANNA: I'm sorry, Madam Chair, I'll
2 read the question again.

3 Q. Is one way to anticipate and plan for
4 such habitat shortages to use predictive forest stand
5 habitat supply models to project future supplies in
6 addition to wood supply?

7 DR. EEDY: A. Yes.

8 Q. Are you of the view that such
9 analyses of future habitat supply should be undertaken
10 concurrently with wood supply analyses?

11 A. In a general sense I think it's a
12 very valuable technique, yes.

13 Q. I would like to move to Section 1.2
14 of your report, Dr. Eedy. I believe this is the one
15 that deals with the comparison of natural and timber
16 harvest disturbances, and I believe your conclusions
17 are presented at the bottom of page 6, and I'll be
18 focussing on those to start off with.

19 Now, you list five actions here that can
20 be taken to minimize adverse impacts of harvesting on
21 wildlife habitat and populations; is that correct?

22 A. Yes.

23 Q. Now, would you agree that implicit in
24 the concept of minimize is an evaluation or tradeoff
25 procedure?

1 A. Yes.

2 Q. The essence of minimizing impacts
3 is -- the real crux of it, is deciding on the
4 appropriate level or degree of minimization; would you
5 agree?

6 A. That's correct.

7 Q. In order to decide upon the
8 appropriate level of minimization, one must carefully
9 weigh the advantages and disadvantages of all
10 alternative courses of actions or activities and arrive
11 at the appropriate level; that's how you see it
12 happening?

13 A. That's right.

14 Q. Interpreting the conclusions
15 presented on page 6 and over on to page 7, is it fair
16 to say that you've assumed that this weighing and
17 trading off to arrive at the appropriate level of
18 minimization will take place through the timber
19 management planning process?

20 A. Yes.

21 Q. And the appropriate level of
22 minimization will be different for various sites and
23 that this should be decided on a site-specific basis;
24 would you agree with that?

25 A. That's correct.

1 Q. So the general principles that you
2 have laid out, the five factors at the bottom there of
3 page 6, they have to be interpreted specifically on a
4 case-by-case basis; that's how you see that happening?

5 A. Yes.

6 Q. You also make mention of the
7 potential to maximize habitat diversity, that's the
8 second part. The first part is to minimize adverse
9 impacts; the second part is to maximize diversity. Can
10 you explain to me what you mean by habitat diversity in
11 this context?

12 A. Well, habitat diversity means that --
13 to me means that within, I'm not speaking of small
14 areas, but within a large area there are --

15 Q. For example, what do you mean by a
16 large area?

17 A. I don't know, in the area of hundreds
18 of thousands of hectares, that there are different
19 types of habitat available and the greater the variety
20 and range, you know, from a diversity or ecological
21 perspective the more choice of habitat there is for
22 species that live in the area.

23 Q. How will I know when I've got maximum
24 habitat diversity? I ask you that question in the same
25 sense that I just went through minimization with you,

1 minimization we have this concept of weighing off
2 advantages and disadvantages. How do I know when I've
3 got diversity?

4 A. Well, again, I think this is where
5 the difficulty in some of these general principles
6 comes in, is that one has to really look at the -- at,
7 first of all, you know, what sorts of levels of
8 diversity are needed to support the populations that
9 are in the area and I guess maximizing diversity,
10 again, has to be looked at as an optimum which in some
11 areas, depending on what lives there or whether there's
12 critical species or habitats, one would apply to a
13 greater or lesser extent.

14 Q. Why are you emphasizing maximizing
15 diversity as opposed to maximizing significant wildlife
16 populations?

17 A. Well, I believe that habitat is more
18 important in the long range and easier to measure and
19 easier to manage than populations. I think, you know,
20 this is generally accepted as a wildlife management
21 principle, that populations can fluctuate considerably
22 and vary from year to year because of a number of
23 factors; whereas the habitat is something that's a
24 little more constant and easy to manage.

25 Q. Does your view not differ with that

1 presented by Dr. Baskerville in his 1985 paper which is
2 included in the Panel 8 witness statement? I believe I
3 gave you a copy of it. I just want to make sure that
4 you -- do you feel that your view differs from his?

5 A. I didn't really think it did, but...

6 Q. Okay. Well, we'll go through it in
7 detail. You've a chance to read this paper?

8 A. Yes.

9 Q. Had you read it before?

10 A. I had read several of his papers, I'm
11 not sure whether I read this particular one before or
12 not.

13 MADAM CHAIR: Mr. Hanna, does the Board
14 have that?

15 MR. HANNA: I can give you an extra copy,
16 Madam Chair.

17 DR. EEDY: Exhibit 378.

18 MADAM CHAIR: We might have it.

19 MR. CASSIDY: Do you have an extra copy?

20 MR. HANNA: (handed)

21 MR. CASSIDY: Thank you.

22 MADAM CHAIR: Thank you, Mr. Hanna.

23 MR. HANNA: It's already been entered,
24 Madam Chair, in the Panel 8 witness statement so we
25 don't need a different exhibit number.

1 Q. Dr. Eedy, I'm going to deal with this
2 in some detail and I just want to make sure: Is there
3 anything outstanding that you would like to say, if you
4 disagree with this paper, that I should know ahead of
5 time or, in general, are you in agreement with it?

6 DR. EEDY: A. I think in general I am,
7 but I mean, I'm not certain that everything he says I
8 agree with absolutely. I think some things could be
9 taken in different ways and it's all a matter of
10 interpretation, but I certainly agree with his approach
11 and his principles.

12 Q. I'd like to turn first to page 365,
13 and I'm using the numbers in the top right-hand corner
14 of the paper there. And I'm looking under the heading
15 there in the right-hand column towards the bottom which
16 is entitled: Forecast Habitat Availability. Do you
17 see that?

18 A. Yes.

19 Q. Now, the first sentence he indicates
20 there that:

21 "The availability in a forest of wildlife
22 habitat is a perfect analogue to that of
23 wood supply."

24 Is this your view also?

25 A. Yes.

1 Q. And he continues on in that paragraph
2 and describes how habitat supply analysis could be
3 married with wood supply analysis and he says:

4 "This will require a quantitative
5 definition of food and cover indicators
6 themselves."

7 Now, do you agree that that's an
8 essential requirement, quantification of those
9 parameters?

10 A. Yes.

11 Q. And he describes there the habitat
12 supply yield curve in the same way as a wood supply
13 yield curve, and I'm wondering if you see significant
14 utility in the habitat supply yield curve concept that
15 he has outlined here?

16 A. Yes.

17 Q. I would like now to turn to page 366,
18 the first full paragraph in the left-hand column Dean
19 Baskerville indicates that:

20 "In forest management proposals, habitat
21 has rarely been defined in a measurable
22 way. It is not possible to forecast
23 availability of that which cannot be
24 measured and it is impossible to
25 implement a plan to control something

1 that cannot be measured."

2 I take it you would agree with those
3 statements?

4 A. This is the first paragraph?

5 Q. The first full paragraph, the part
6 paragraph there at the top. It's the first full
7 paragraph in the middle. I didn't count the number of
8 sentences. The sentence begins on the right-hand side
9 of the line:

10 "In forest management proposal, habitat
11 has rarely been defined..."

12 A. Yeah, I'd agree with that, and I
13 think forest surveys are emphasizing the trees; whereas
14 I feel that with habitat supply there has to be
15 emphasis on the undergrowth as well which isn't really
16 measured in the forest traditional.

17 Q. And it has to be quantified?

18 A. Yes.

19 Q. And he's not talking here about the
20 matter of understorey - I don't think he's discounting
21 that either - he's talking specifically though about
22 the need to set out very specific terms so that you can
23 plan for it and you can implement it; is that not the
24 essence of what he's saying?

25 A. Yes.

1 Q. And you agree with that?

2 A. Yeah.

3 Q. And then he goes on several paragraphs
4 down and he says: -

5 "Most importantly, this definition must
6 be in quantitative terms. The incessant
7 invocation to maintain a diverse balance
8 of food and cover habitat types with
9 maximum interspersion is worse than
10 useless."

11 Is this your view?

12 MR. MARTEL: We are having difficulty
13 where you are starting these sentences, Mr. Hanna.

14 MR. HANNA: I'm sorry. It's difficult,
15 Mr. Martel, because of the length of the paragraph.
16 I'm still in the same paragraph, I'm one sentence past
17 the section I just read.

18 DR. EEDY: I'm afraid I'm getting a
19 little confused with what he means by interspersion and
20 interspection.

21 MR. HANNA: Q. Interspection. I didn't
22 pick up interspection, I'm sorry.

23 MADAM CHAIR: Sometimes Dr. Baskerville
24 doesn't get to the point exactly.

25 DR. EEDY: Are these forestry terms and

1 not --

2 MR. HANNA: Q. Interspersion. You're
3 not familiar with the term interspersion in wildlife
4 habitat?

5 DR. EEDY: A. I could sort of guess at
6 what it means but I prefer not to.

7 Q. You're familiar though with the
8 concept of diversity?

9 A. Certainly, yes.

10 Q. Are you familiar with the --

11 A. I don't know what interspection -- "a
12 measurable amount of interspection".

13 Q. I'm sorry, I suspect it's a typo, but
14 I'm not just even sure where you're referring to.

15 MR. CASSIDY: Next paragraph.

16 MR. HANNA: Q. Oh, I see. Yes, I see
17 where you're talking about. I think he's meaning
18 interspersion there.

19 DR. EEDY: A. I presume what he means by
20 interspersion is basically a measure of diversity.

21 Q. It's another way of -- the
22 juxtaposition of stands, the amount of edge between
23 stands, that type of thing. You're familiar with those
24 concepts?

25 A. Mm-hmm.

1 Q. And that's often referred to as
2 interspersion of stands; is it not, or interspersion of
3 habitat types?

4 A. I guess this is similar to what on
5 page 6 and 7 we've been talking about as using the
6 residual forests and this sort of thing, and that would
7 be what I have termed as increasing the diversity will
8 also be increasing the interspersion in his terms.

9 Q. For our discussion right now let's
10 you and I decide - I don't know if this is what Dr.
11 Baskerville means - this is what you and I will mean,
12 interspersion and diversity for all intents are the
13 same thing, okay.

14 Now, I'm going to read you the question
15 again:

16 "Most importantly, this definition must
17 be in quantitative terms. The incessant
18 invocation to maintain a diverse balance
19 of food cover habitat types with maximum
20 interspersion is worse than useless."

21 Now, do you agree with that?

22 A. I'm still a little confused as to
23 what -- I take it that what he's saying is to try to
24 manage for too much diversity is not a good goal.

25 Q. No, I don't read that at all. I

1 think if we go back --

2 A. I still haven't found that sentence.

3 Q. Oh, I'm sorry. I'm sorry. Okay.

4 You found the first sentence, Dr. Eedy, that we talked
5 about, "In forest management proposals..." Okay. And
6 I remember I read you those two sentences.

7 A. I've been reading the wrong
8 paragraph.

9 Q. Okay. Let's wind the reels back here
10 and start again, and I'll read you the sentence again,
11 it's just after the Thomas quote:

12 "Most importantly, this definition must
13 be in quantitative terms...", and this
14 definition he's referring to here is the habitat.

15 A. Mm-hmm.

16 Q. Okay. And he's saying:

17 "The incessant invocation to maintain
18 a diverse balance of food and cover
19 habitat types with maximum interspersion
20 is worse than useless."

21 And he goes on and explains why he sees
22 it being such a problem, and I just wanted to see if
23 you agree with that.

24 A. Again, I may be interpreting it
25 wrong, but I take it what he's saying is that there is

1 a medium between managing for sort of total diversity
2 and managing the sizes of units that one would
3 intersperse.

4 Like, he's saying that if you try to
5 become too diverse or maximize this interspersion that
6 it's worse than useless.

7 Q. All right. Well, let's --

8 A. You know, I think this is -- it's a
9 very generalized sort of statement which is difficult
10 to -- you know, I mean you can't really totally agree
11 or disagree because it's more sort of in relevant terms
12 if one were to say: I'm going to maximize dispersion,
13 I'm going to I guess basically go into the forest and
14 do selective cutting, I will cut a tree here and that
15 will make a little area of one type of habitat and I'll
16 cut another tree over here and I'll grow a tree so much
17 age here. I think that I agree that one could carry
18 that too great of an extent.

19 DR. SCHIEFER: A. Mr. Hanna, I've got a
20 fair amount of experience with what he's getting at.
21 Perhaps I could assist you for a minute.

22 Q. Sure, I'd be happy for your
23 assistance, Dr. Schiefer.

24 A. I think he's referring to the ability
25 to use that concept in a mathematical predictive

1 modeling concept. I think the terminology is certainly
2 appropriate as a habitat management principle and it
3 certainly has value as a habitat principle, but it is,
4 in his terms, useless when you deal with mathematical
5 predictive modeling because it's not quantifiable.

6 Q. He isn't talking about mathematical
7 modeling though; is he, Dr. Schiefer? He's talking
8 about forest management, he's talking about directing
9 what happens on the ground, what this whole hearing is
10 about, that's what he's talking about; isn't it? I
11 don't see mathematical model anywhere referenced here.

12 A. No.

13 Q. What he's talking about is, if we're
14 going to manage habitat and timber at the same time, we
15 have to quantify what we need in the habitat just as
16 much as we need to quantify what we need in terms of
17 wood supply; is that not what he's saying?

18 A. But he's tying it into wood supply
19 modeling.

20 Q. But he's simply saying to manage --
21 the statement before that that I read to Dr. Eedy, he
22 says, if you want to implement something, implement a
23 plan, and if you want to control something you have to
24 be able to measure it; if you can't measure it, you
25 can't control it because you're controlling what you're

1 implementing. Isn't that the essence of it?

2 A. That is the essence of it, however,
3 the term useless for that particular habitat criteria
4 definition, it's not useless in terms of defining the
5 principle, it's useless in terms of doing any kind of
6 management application.

7 Q. That's my reading of it also. So
8 good, and I think we have the same understanding, Dr.
9 Schiefer.

10 Dr. Eedy, are you of that understanding
11 also?

12 DR. EEDY: A. Yes. I guess what maybe I
13 am interpreting this a little bit differently, but part
14 of what I see in what he's saying relates to what we're
15 saying in Section 1.4 on the provincial or regional
16 populations.

17 He's saying that in forest management you
18 are basically looking at fairly large areas of land to
19 try to maximize interspersions, by trying to work with
20 little bits and pieces of that land really just
21 doesn't -- it becomes very difficult when one is
22 working with a large area the size of the undertaking
23 in Ontario.

24 Q. I don't disagree with you, Dr. Eedy,
25 and does deal with that later, but in this part of the

1 paper what he's talking about, he's hasn't start to
2 enter into the stand level versus forest level type
3 management concept, he's simply talking about the need
4 to be specific, explicit, quantitative in terms of the
5 terms that we use with respect to habitat. That's the
6 essence of what he's saying; is it not?

7 A. Well, I still think that that
8 sentence that you read, "Incessant invocation to
9 maintain a diverse balance with maximum interspersion",
10 is talking about trying to overmanage a forest and
11 trying to look at every little bit of it rather than
12 looking at the forest as a whole.

13 Like, as we've emphasized in here, when
14 you harvest a forest there are impacts, some of them
15 are good, some of them are bad and these impacts change
16 with time. Ten years after you harvest you'll have a
17 differ habitat there than when you harvested, but on
18 the whole area of the undertaking any individual
19 harvest area is a very small patch and if one tries to
20 overmanage by trying to maximize diversity at any
21 single one point in time on any single small spacial
22 area, it's basically what he's calling this incessant
23 invocation to maximize interspersion.

24 And, you know, on the broad range of
25 managing the forest and the regional populations, it

1 becomes a bit of an exercise in futility.

2 Q. Okay. I accept that. Let's just
3 look at the next sentence, because I think he clarifies
4 it in the next sentence. He says:

5 "As a management goal these non-specific
6 terms give the illusion that someone
7 knows what they are talking about, but
8 these things cannot be implemented
9 because they are not measurable."

10 Now, isn't that the essence of it, and do
11 you agree with that?

12 A. Again, there are ways of measuring
13 diversity but, in general, I agree.

14 Q. And so if we are going to use
15 diversity we have to define what it means in a
16 measurable way?

17 A. Yes. There are certainly ways of
18 measuring diversity though. I know in other fields
19 such as in benthic biology which is where Beak, as a
20 person, got its start. That was a very important
21 aspect of the whole field, to measure the diversity
22 using an index and use that as an indicator of the
23 health of the ecosystem.

24 Q. So what you're saying is diversity
25 can be quantified, it can be put in measurable terms?

1 A. Yes.

2 Q. In your cross-examination with Mr.
3 Lindgren he asked you the following question. I can --
4 it's out of Volume 212. Just one question, a very
5 short answer. If you want, I'll show you the page, but
6 it's on page 38349 and Mr. Lindgren asked you this
7 question:

8 "Dean Baskerville also indicated that we
9 need to set quantifiable habitat and
10 population targets. Would you agree with
11 that?"

12 And your answer was:

13 "Again, I think that certainly is, from a
14 wildlife perspective is a reasonable
15 point. I don't feel that it's absolutely
16 essential."

17 Do you recall that answer?

18 A. Yes.

19 Q. Now, I read Dr. Baskerville and I
20 read what he's saying here, at least in this paper, in
21 his view, that it is absolutely essential to quantify
22 these things; you're saying it isn't absolutely
23 essential to quantify them. Why do you feel it isn't
24 absolutely essential?

25 A. Well, I'm not -- again, I think part

1 of the problem is what one means by the term quantify.
2 I think there's a point -- and, again, this gets to the
3 point on how specific one measures things and on what
4 units one measures things. As an ideal it would be -
5 nice to know basically how many of every species of
6 animal and how many of every type of habitat and this
7 sort of thing exists in the area of the undertaking,
8 but if every person in Ontario was a wildlife biologist
9 and was out there doing this on a full-time basis, I
10 don't know if we've ever reach that position because
11 the forest would probably change faster than we could
12 count the different animals and habitats.

13 Also, you know, I feel that in a general
14 term it's important to have some idea as to the numbers
15 of quantification, I don't think in an absolute term it
16 is because I don't think it's possible.

17 Q. In an absolute term, you're
18 suggesting an absolute in terms of all the species in
19 the forest, but for those species that you're going to
20 manage for, those species that you're building your
21 plan around.

22 A. Again, you know, the whole concept of
23 doing surveys is that one is relating a small area and
24 a small portion of the population statistically
25 assuming that that's what happens through a whole large

1 area to have -- I would say it's important to have an
2 estimate of the quantification of what is going on; to
3 have an absolute quantification I think is impossible.

4 Q. Okay, fine.

5 A. We will never know exactly how many
6 moose there are in the area of the undertaking.

7 Q. Okay. But the question is not should
8 we have an absolute measure of how many moose there
9 are, but should we have a quantified objective
10 recognizing that there's error in that, and do you
11 believe that that is absolutely essential?

12 Do you agree that that is absolutely
13 essential, the need for that quantitative objective,
14 not an absolute measure of the population, but a
15 quantitative objective?

16 A. Certainly feel, I mean, if one
17 doesn't have objectives one doesn't have anything to
18 manage for.

19 Q. Okay. I'd like to pick up on what
20 you said about the need for a definition of diversity
21 and refer here again to Dr. Baskerville. In the next
22 paragraph, the second sentence, he says:

23 "The word diversity is ubiquitous in
24 wildlife management goals and although
25 many papers discuss its measurement, I

1 have never seen a specification of how it
2 is to be measured at the forest
3 management level nor of a target amount
4 of diversity in units of this measure at
5 the forest management level."

6 Are you aware of quantified measures of
7 the supply of diversity that we need in the forest?

8 A. No, I'm not.

9 Q. So do you share the same concern that
10 Dean Baskerville raises in terms of trying to clearly
11 define diversity?

12 A. Again, I guess as it's used here or
13 as it's used it becomes sort of a generic kind of term.
14 I'd agree that it's difficult to put a number
15 measurement on it. I suppose it could be done if one
16 were to go out and, you know, count all the ages and
17 sizes of all the different species of vegetation in the
18 forest and put it into a formula.

19 I'm not sure of what use that would be,
20 one could say that, you know, this forest has a
21 diversity index of .8, this one has one of .85. I
22 don't know that that would give one anything that one
23 could use as a management tool to see that one forest
24 is better or worse than other.

25 Q. And that comes to what Dr. Schiefer

1 was saying, it's a good principle.

2 A. Yeah.

3 Q. You're not going to disagree that
4 Habitat diversity is a good principle in wildlife
5 management?

6 A. Certainly, yes.

7 Q. But certainly making that useful in a
8 management way, making it useful in a planning way in
9 terms of implementing certain activities on the ground?

10 A. I think certainly as a wildlife
11 biologist I could go out into different areas and just,
12 I guess, subjectively say whenever I feel an area has
13 diverse habitat or not by looking at, but I don't think
14 I could objectively put a number on it.

15 I think that possibility is there, but I
16 think it would take a lot of time and effort, and I
17 don't think it would be a very much useful end result
18 because one would have to end up I guess then doing
19 hundreds of years of research to relate the diversity
20 to the populations of each species or whatever.

21 Q. Right. And that was Dr.
22 Baskerville's similar conclusion. He says what we're
23 really talking about is population to species habitat
24 diversity is a way to achieve that, but what we're
25 really concerned about is population to species;

1 correct?

2 A. Again, in an overall sort of period
3 of time in an area, not populations at one specific
4 place and time.

5 Q. Right. And so continuing on with
6 this theme, and Dr. Baskerville in my view sort of
7 concludes it in that same paragraph, the second last
8 sentence -- or third last sentence when he says:

9 "Perhaps the greatest drawback to
10 implementing habitat management has been
11 the instruction that diversity and
12 interspersion should be maximized which,
13 in the absence of any measure of these
14 factors, is an impossible task."

15 And I believe we've agreed to that.

16 A. Yeah.

17 Q. And so he says: Well, now we've got
18 to move to something that's more quantifiable,
19 something measurable, something we can use to plan the
20 forest structure; correct?

21 A. Mm-hmm.

22 Q. And he goes on and describes how that
23 can be done and he makes the point that you've made,
24 that you can't just look at stands, you've got to look
25 at the whole forest; correct?

1 A. Yes.

2 Q. Now, what I'm interested in knowing,
3 what made me come to this, was this statement on the
4 bottom of page 6 in your witness statement where you
5 said that these activities or the procedures will lead
6 to achieving habitat or will lead to habitat diversity
7 being maximized, and I'm trying to look at that in an
8 operative way and I see these pitfalls that Dean
9 Baskerville has outlined here in using the terms
10 maximizing go diversity, that it's not definable, it's
11 very hard to put your hands on, it's a good principle
12 but what does it really mean.

13 And I'm trying to reconcile that with
14 your statement here which is dealing with very specific
15 actions. Now, how did you come to that conclusion,
16 what definition did you use for habitat diversity?

17 A. Well again, as I said or just said a
18 few minutes ago, I would have no difficulty in going
19 out into a forest and saying whether I could see the
20 habitat there being more or less diverse than some
21 other area.

22 Q. But, Dr. Eedy, isn't that the essence
23 of what Dean Baskerville is saying, you can't go out
24 and see a forest; you can go out and see stands but you
25 can't see a forest. Is that not the essence of his

1 whole thesis?

2 A. Well, again I see, I guess, stands
3 are areas of the forest.

4 Q. But a forest is a dynamic unit over
5 space and time, you can't go out and see a hundred
6 years of a forest?

7 A. No, at one time.

8 Q. And that's the essence of his point;
9 isn't it, that a forest is a dynamic, it's a dynamic in
10 time and space. You can see stands; you can't see a
11 forest, you can only see a forest statistically; is
12 that not correct?

13 A. You can, I guess, basically apply
14 knowledge of the stands and knowledge of the dynamics
15 of the forest to understand the forest as a whole
16 without seeing it.

17 Q. But you can't go out and see it; can
18 you, because you can't go out and see a hundred years
19 into the future?

20 A. No.

21 Q. And that is the whole point, and
22 that's why it has to be quantified and has to be in a
23 definitive term that can be used in a manner comparable
24 to wood supply models, forest succession models, other
25 things that foresters use in planning the forest?

1 A. Yeah.

2 Q. Now, I would like to look at a
3 statement that you made reference to, and that is on
4 366, the first full paragraph in the right-hand column,
5 the first sentence, it says:

6 "Whenever the foresters focus their
7 attention solely on individual stand
8 treatment there has been anecdotal
9 silviculture but little real forest
10 management."

11 And I'm sorry, I jumped ahead of myself
12 there, but these two sentences go together. If you
13 look just above that, in the middle of the paragraph
14 above it he also says:

15 "Much is made of actions taken on a few
16 isolated hectares to change the habitat
17 in that local area, but these interesting
18 actions are proposed outside the context
19 of the total forest."

20 Now, both of those sort of deal with that
21 same theme we've just talked about; correct?

22 A. Yes.

23 Q. And you agree with that concept?

24 A. Yeah. Well, I think this is one of
25 the basic theories we're looking at, that it's the

1 whole area that's important, not the small individual
2 units.

3 Q. Do you agree that in order to
4 interpret the moose habitat guidelines outside the
5 context of individual stands and within the context of
6 the total forest that this requires some type of, I'll
7 say computer assistance, but some analytical assistance
8 such as that is used for wood supply analysis.

9 Is it not almost a daunting problem
10 otherwise to look at the forest over time and space and
11 apply those guidelines?

12 A. Yes, it's -- well, it's -- I guess
13 the -- or my feeling of how the guidelines are applied
14 or the concept behind them is that if they are applied
15 continuously or in the same manner across the whole area
16 that the end result is somewhat the same. To measure
17 that end result over the whole area of the undertaking
18 would require some analytical tool, yes.

19 Q. I'm not talking the area of the
20 undertaking, I'm talking about a forest management unit
21 and I'm looking here --

22 A. Well --

23 Q. When Dr. Baskerville talks about a
24 forest, I think his evidence has shown he's talking
25 about - and in fact I think he was suggesting it would

1 be nicer if we had smaller areas than what we have as
2 forest management units - but he's talking about that
3 sort of -- a forest management unit level, and I think
4 these comments apply the same.

5 And what I'm saying to you is: To deal
6 with that dynamic the foresters use wood supply models,
7 they use forest succession models, they use extensive
8 databases and whatever to try and deal with that, they
9 use all of those quantitative tools to assist them in
10 looking not at the area of the undertaking, but looking
11 at a forest management unit.

12 And could you not make the same argument
13 that you've made in terms of the wood supply -- in
14 terms of wood supply as you have with moose habitat
15 guidelines, as long as I keep cutting nice little
16 patches of timber I'll always have enough timber there?

17 A. Yeah, I--

18 Q. Why do we need --

19 A. --I feel the analytical tool, from a
20 wildlife management or from a wildlife biologist
21 perspective, would certainly allow us the technique of
22 getting a better handle on the wildlife.

23 Now, whether that is absolutely
24 necessary, whether -- you know, I certainly see the
25 moose guidelines applying in a forest management unit

1 or the use of areas of concern and that sort of thing
2 as attaining the same kind of end result perhaps a
3 little less measurable.

4 Q. Let's just step back here for a
5 second. We've talked about this need to look at the
6 forest as a whole--

7 A. Mm-hmm.

8 Q. --over time and space, and when I say
9 the forest, I'm talking the forest management unit.
10 Can we agree to that?

11 A. Okay.

12 Q. And Dean Baskerville said here,
13 whenever foresters have focused on individual stand
14 there has been anecdotal silviculture but little real
15 forest management.

16 Now, if we use the analogy with the moose
17 habitat guidelines and we say: Let's apply the moose
18 habitat guidelines, if we go and start applying the
19 moose habitat guidelines at a stand level without
20 looking at the application in a forest context, do we
21 not fall in the exact same trap that Dr. Baskerville
22 has described in terms of wood supply?

23 A. I guess part of my problem is that I
24 am not really into the wood supply planning sort of
25 issues, so it's -- I see the wildlife issues and --

1 Q. Dr. Eedy, let me take out wood
2 supply. Just forget about wood supply, let's just talk
3 about wildlife habitat supply.

4 A. Mm-hmm.

5 Q. Let's just talk about applying those
6 moose habitat guidelines on a stand-by-stand basis;
7 without looking at the forest level, what's happening
8 in terms of the overall forest dynamic in terms of
9 wildlife habitat, we will end up with anecdotal
10 wildlife habitat management; won't we?

11 A. I don't -- I really think applying
12 the guidelines on a site-by-site or stand-by-stand
13 basis where there -- you know, there has to be some
14 information, but on what the sort of habitat values are
15 in individual stands and this sort of thing, I really
16 don't see where it necessarily doesn't work.

17 I think there are two, you know, you're
18 talking about sort of two ways of going towards the
19 same goal.

20 Q. Let me ask you. This as as biologist
21 faced with applying those guidelines, we've talked
22 about the need to be forward-looking in terms of
23 habitat supply, all different elements of habitat
24 supply, and you'll agree with me that habitat's a very
25 multi-factored and complicated matter to define?

1 A. Yeah.

2 Q. So I've got this complicated
3 multi-factored supply that I have to project and I've
4 also got this very multi-factored and complicated
5 dynamic taking place which is the forest, forest
6 succession, and I know the action I take today when I
7 apply those guidelines is going to be with me for a
8 hundred years, until the next harvest.

9 It's a very complicated problem; wouldn't
10 you agree? It's very hard to look at just a stand
11 level and to come to any conclusive determination as to
12 the appropriate treatment, it's anecdotal treatment;
13 isn't it?

14 A. I don't really totally agree because
15 I feel that a lot of the decisions have to be made on a
16 site-specific basis, which I would consider as a stand
17 basis, and that by making decisions at a number of
18 stands that this all comes together.

19 Q. I don't disagree with you that the
20 actions take place at the stand level, the question is
21 the context within which those decisions are made. Do
22 you disagree with the statement that--

23 A. Well, I --

24 Q. Do you disagree with the statement
25 that the interesting actions have to be considered

1 within the context of the total forest as Dr.
2 Baskerville indicates?

3 A. Well, as we have indicated, or I have
4 indicated in Section 1.4 of this report, it's the
5 population in the whole area that is important.

6 I mean, to me this is what is of overall
7 importance. As long as there is a viable population
8 within a large region, it is -- I mean, it may be
9 important to individual people, but on an ecological
10 perspective it's less important whether this small
11 numbers of these animals may be either impacted
12 adversely or beneficially at any individual location
13 and, you know, I don't disagree with that aspect at
14 all.

15 But I think that one has to know enough
16 to know that there is this viable population out there,
17 but I don't think one has to be able to quantify
18 precisely the exact numbers of animals in that
19 population of species there are in order to make that
20 decision.

21 Q. Well, let's continue on. Just one
22 last section of this paper before we're finished with
23 it. At the bottom of page 366, the last paragraph
24 there that continues over to 367, he indicates that:

25 "Habitat plans are not being taken

1 seriously in the management
2 decision-making process because the
3 relationship between target populations
4 and the specification of habitat types
5 and geographic pattern should be stated
6 quantitatively."

7 Now, do you disagree with that statement?

8 A. I certainly agree with the latter
9 part of it.

10 Q. That populations and--

11 A. Relationship.

12 Q. --habitats need to be specified in
13 quantitative terms in time and space?

14 A. Yes. Again, in order to set
15 management goals one has to have some concept of this
16 relationship, but I guess where my problem is that it's
17 not an absolute, it's more of a relative, a relative
18 relationship between habitat and population without --
19 one will never know the absolute relationship.

20 Q. Right. Now, you've made that point
21 very clear and perhaps, Dr. Eedy, just to expedite
22 things for the remainder of this day, I accept your
23 point that we'll never have an absolute measure of
24 population, we'll never have an absolute measure of
25 anything, by definition we don't have it.

1 What we're talking about here though is
2 the specification of quantitative objectives, accepting
3 that there is error around them, okay. So let's focus
4 our attention on the fact that we quantify, but we
5 accept that there's error in that quantification.

6 A. I guess what I'm saying though is,
7 again, gets to me when you say quantify, you're saying
8 something that's a number and I'm going to be saying:
9 Well, I want .5 moose per hectare average across the
10 province.

11 My feeling is the goals, at least an
12 initial stage or at the cut off-level the goal should
13 be that one has basically a viable population in the
14 province, and I don't think that's necessarily a
15 quantifiable term.

16 I mean, there may be biological papers
17 that say, you know, if we have less than 200 animals
18 over such and such area they are not going to get
19 together and breed and, consequently, we won't have any
20 young and the population is going to die. But it's
21 more within a sort of range rather than the specific
22 number.

23 Q. But, Dr. Eedy, isn't that a very
24 pessimistic view for a wildlife biologist to say: Well,
25 we don't want to risk any populations but we can't do

1 any better than that. Isn't part of management to try
2 to go towards achieving some specific end and that
3 specific end doesn't have to be a viable population, it
4 can often be an optimum population being many times
5 greater than a viable population, and you can quantify
6 that as an objective?

7 A. As an objective you can, yeah,
8 quantify it basically in a range.

9 Q. Fine.

10 A. I'm not -- I certainly don't advocate
11 that one should be decimating populations to the point
12 that they're barely viable either.

13 Q. Right. And there some populations
14 that we want to manage to specific population goals?

15 A. Yes. Again, you know, I guess --
16 yes, within a range, yes.

17 Q. And now, just finishing off here, I'm
18 just looking at the -- I'm on page 367 at the top
19 right-hand side. It says:

20 "So it will continue to prove difficult
21 if not impossible to have habitat enter
22 the forest management decision process if
23 the goal is simply to make habitat
24 better."

25 Then skipping the sentence, I go down:

1 "Decision-makers do not like such logical
2 merry-go-rounds. I do believe that
3 decision-makers will consider habitat
4 measures that relate to measurable
5 population goals."

6 Has this been your experience?

7 A. Yes, I think this certainly -- you
8 know, having measurable goals is easier to aim for than
9 not having them.

10 Q. Right. And he concludes there just
11 above the last section there, the last sentence he
12 says:

13 "All that is necessary is that there be a
14 specified relationship of habitat
15 availability to the subject wildlife
16 population."

17 This critical connection between habitat
18 and population is the - how should I say - the
19 cornerstone on which those objectives are set. You'd
20 agree with that?

21 A. Yeah. Again, you know, my -- I guess
22 I'm quibbling a bit with words, but I feel it would
23 have been better to say an estimated relationship
24 rather than specified, because I've spent too much of
25 my time in some of my early research in looking at

1 relationships between populations and environmental
2 factors and to come up with an exact relationship is
3 extremely difficult, if not impossible. Everything has
4 to be taken in terms of best estimates.

5 Q. But I think you made it very clear,
6 that's no reason not to make those estimates in any way
7 whatsoever?

8 A. No, certainly not.

9 Q. Important to identify the errors
10 though.

11 A. Yes.

12 Q. The error bands.

13 A. Yes.

14 Q. I'd like now to look at the specific
15 wording of the five factors you listed there on the
16 bottom of page 6. The first one -- I look at the first
17 variable which says:

18 "Vary harvest patterns and shapes to the
19 extent practical and as appropriate on
20 various sites throughout similar areas
21 within the area of the undertaking."

22 Now, the key operative words in my view
23 here are: (1) the extent practical; and, (2)
24 appropriate. What do you mean by the extent practical
25 in this context?

1 A. Well, again, these are somewhat
2 generic recommendations and I think the practical and
3 appropriate are really more in the nature of the forest
4 planning kind of issues. I'm not an expert on what is
5 possible as far as forest planning and harvest planning
6 and this sort of issue.

7 Q. So in order to implement --

8 A. I think you'd have to have
9 interaction between your forester and your biologist to
10 look at that kind of issue.

11 Q. So this is another example where
12 tradeoffs are implicit in what you're saying and that
13 in order to make those tradeoffs, quantification of the
14 habitat objectives would help immensely?

15 A. Yes.

16 Q. The next point deals with effectively
17 controlling hunting pressures. Again, you've used what
18 I would call the key operative word, effectively. I
19 take it it has the same meaning as extent practical and
20 appropriate in the preceding statement?

21 A. Yes. You know, I am not saying that
22 there should be absolute control, but -- or absolute
23 prohibition, at the same time certainly most of what I
24 have read and understand about, at least from a large
25 ungulate point of view, one of the major concerns is

1 not so much the habitat that the animal can use as the
2 cover that it requires from predators including man.

3 Q. Is it hunting pressure that must be
4 controlled, or is it mortality?

5 A. I guess it's mortality, yes.

6 Q. And would you agree that the
7 objective is to control mortality and at the same time
8 to maximize hunting opportunities; that's usually -- to
9 get the best benefit?

10 A. Again, I'm a wildlife biologist and
11 I'm not -- personally am not strongly in favour of
12 hunting as a sport or as potentially an economic
13 activity.

14 I feel that, you know, again from a
15 personal perspective that there are people such as
16 natives and this that rely on it, and I guess this is
17 really a planning or some other policy objective is, if
18 you want to manage wildlife for the purpose of
19 providing a sport for hunters, it's not my objective in
20 managing wildlife.

21 Q. But as a professional biologist,
22 professional wildlife biologist is it not your
23 experience that you usually receive the highest
24 economic benefit from having the highest hunting
25 activity?

1 A. I'm not really -- my involvement in
2 this project is really not looking at maximizing
3 economic activities.

4 Q. You're saying as a wildlife biologist
5 you've never had to give consideration to that.

6 A. I've considered it, but certainly it
7 isn't really in the terms of what I was looking at in
8 this particular study.

9 Q. Okay. What procedures are you
10 suggesting should be used to control hunting pressure
11 to minimize the impact of timber harvesting?

12 A. Well, I guess -- again, I think this
13 has to be more of a planning issue and applied on a
14 sort of wildlife management unit basis or something
15 like that, but if there were undue mortality and it
16 were affecting the species in an area such as either
17 forest management or wildlife management, I think the
18 easiest way would basically be controlling access.

19 I do believe that at this time that there
20 is a fair bit of control of hunting activities just
21 through the licensing process but, again, that's more
22 of a planning issue and I'm not really totally familiar
23 with that.

24 Q. Does controlling access not reduce
25 the quality and quantity of hunting opportunities where

1 it's used?

2 A. Again, you know, this is getting into
3 issues which I'm not really -- wasn't really looking at
4 in this study as to quality and quantity of hunting
5 opportunities.

6 Q. Dr. Eedy --

7 A. When timber roads are built, I don't
8 think that they're particularly built for providing
9 hunting access, it's a secondary factor that comes
10 after. Whether that benefits any particular person or
11 adversely impacts on others, is...

12 Q. So when you've made this statement to
13 the Board, this action in No. 2, you haven't given any
14 thought to how that might be done or what the
15 implications might be or, like when I asked Dr.
16 Schiefer a similar type of question the other day with
17 respect to the Code of Practice and limiting site
18 impacts and whatever, he said: Look, here, this is how
19 I see that being implemented. You're telling me now
20 that you haven't really given any thought to it, you
21 said: Well, control hunting pressure and --

22 A. I have given thought to it and from a
23 wildlife perspective not from a hunter economic
24 perspective or a hunter quality whatever. Basically
25 from a wildlife perspective, if one controlled access

1 on the roads which were built for timber harvesting,
2 this would benefit the wildlife.

3 Q. Is another way to effectively control
4 harvest rate to design the shape and size of clearcuts
5 to reduce exposure of animals to hunters?

6 A. This could be as well, yes.

7 Q. Can this not be as effective a way to
8 control hunting pressure in newly accessed and cut
9 areas?

10 A. I don't know. I personally feel that
11 control of access, because basically there have been
12 studies that have indicated that there's very little
13 hunting of large ungulates further than, say, a
14 kilometre from road access.

15 Controlling size and shape, maybe if you
16 allow the access makes it's a little more difficult for
17 a hunter, but controlling access is an absolute
18 control.

19 Q. Is it, or is there not a more
20 absolute control; is there not a control saying a
21 specific limit of animals that will come out of a
22 particular area based upon the local population?

23 A. That's another way.

24 Q. That's a more absolute way?

25 A. If one wanted to talk about more

1 absolute, one would disallow hunting and that would be
2 absolute. If you don't give anybody guns they can't go
3 and shoot the moose and there wouldn't any impact of
4 hunters. I mean, that's the total absolute.

5 Q. There could be a very negative impact
6 too; couldn't there?

7 A. On the hunters perhaps.

8 Q. On the population also, or you aren't
9 familiar with the Long Point issue?

10 A. Well, again, Long Point is a sort of
11 heavily managed kind of area. I mean, the area of the
12 undertaking has natural predators and has natural
13 dynamics, it's not an artificial park sort of
14 situation.

15 The same thing happened in Algonquin Park
16 with the control of hunting and the control of fires
17 and the control of harvesting, basically they found
18 that harvesting was almost necessary to allow the deer
19 population there to survive, but this isn't the
20 situation in the majority of the area of the
21 undertaking.

22 Q. Okay. But back to the question.
23 Another way to deal with this would be to provide
24 specific limits or specific--

25 A. Well, that's the way --

1 Q. --harvest quotas on new accessed
2 route basis.

3 A. Well, I understand the concept that
4 the Ministry has put forward and I have no argument
5 with it, that there are so many licences allowed and
6 that there are so many -- so much of a harvest allowed
7 and that if one allows new access into a new area this
8 displaces some of the hunting pressure from another
9 area and on a province-wide basis everything balances
10 out. I'm not -- I have no problem with that.

11 Q. But, Dr. Eedy, that was not the
12 proposal I made to you. The proposal I made to you was
13 controlling harvest on a road-specific level when new
14 areas are harvested, new areas are accessed.

15 A. Yes.

16 MR. MARTEL: Don't you do that now
17 through its licence practice control; what in effect is
18 taken from an area.

19 DR. EEDY: That's another --

20 MR. MARTEL: By issuing a number of
21 licences that can only support what's there, if I can
22 use the term support in that manner.

23 DR. EEDY: Yeah. I think what Mr. Hanna
24 is proposing is that one maybe have checkpoints on the
25 road and count the number of moose that come out and

1 say: Well, after 10 are shot we don't allow anyone up
2 that road anymore.

3 I think that would be similar to the
4 wildlife management unit, but these are large units,
5 except it would be much more intensive and would
6 require an awful lot of people standing on checkpoints
7 counting hunters and moose because there are a lot of
8 roads in some of these areas.

9 MR. HANNA: Q. There are other ways
10 though; aren't there, Dr. Eedy, like mandatory
11 reporting that have been used successfully in other
12 jurisdictions?

13 DR. EEDY: A. I'm not sure how
14 successful a mandatory reporting have been used.

15 MR. HANNA: Mr. Martel, we will be
16 providing evidence on that matter.

17 MR. MARTEL: Yes. I am just trying to
18 get a handle, because I thought that the whole purpose
19 of licensing was in fact to control the take and that
20 it varied from area to area to coincide with what was
21 considered there at the time.

22 MR. HANNA: Mr. Martel, the evidence that
23 we'll be presenting will be the fact that the wildlife
24 management units are very large areas of land, that you
25 can have extensive overharvesting of the nature that

1 Dr. Eedy has raised as a concern in his witness
2 statement on a local level within a wildlife
3 management, and so that one way to ameliorate that
4 negative impact, this controlling of hunting pressure
5 that he's identified here in his witness statement is,
6 instead of having just a limit on the whole wildlife
7 management unit, that you have it at a much more
8 specific level within the wildlife management unit.

9 MR. MARTEL: Well, I think it goes back
10 then to the question I raised with respect some weeks
11 ago where we talked about going out and walking an area
12 to make sure we know precisely what is there before we
13 designate the limits. I think we were talking about
14 water and first order streams and second order streams,
15 and how many people are available in fact to do it in a
16 country the size of Canada - I think I drew in as well
17 at the time the amount of land per forester in Europe
18 as opposed to Ontario.

19 And I think anything's achievable if
20 you've got enough bodies out there to do the work.

21 MR. HANNA: Well, in this case there may
22 be ways -- there are the bodies, we have the hunters
23 out there. It's a question of how we utilize those
24 resources; if the hunters are willing to report their
25 kills, and that has -- certainly from this province's

1 experience we can see that there has been a lot of
2 cooperation with hunters with regulation - that's the
3 potential way of going about dealing with this issue.
4 That's the reason I was raising it.

5 MR. MARTEL: You'd agree that the odd
6 moose has been taken without ever reporting it though?

7 MR. HANNA: Oh, Mr. Martel, you should
8 join our --

9 MR. CASSIDY: You're not speaking from
10 personal experience though; are you, Mr. Martel?

11 MR. MARTEL: No, no, I'm not talking --

12 MR. HANNA: You should join our
13 report-a-poacher campaign, Mr. Martel. It's designed
14 to deal with that very issue.

15 Q. Back to your witness statement, Dr.
16 Eedy. I'm looking now at the third item which is:

17 "Leaving residual vegetation to the
18 extent practical in areas of significant
19 wetlands, aquatic buffer zones and
20 difficult terrain."

21 And again, extent possible is -- or
22 extent practical is similar to the way that you used it
23 in 1 and 2 above?

24 DR. EEDY: A. Yeah. I would almost say
25 it's the other way around, in that you're leaving a lot

1 of these areas because it wouldn't really be practical
2 to harvest them, but then I'm not an expert on
3 harvesting, that's just my personal opinion.

4 But based on evidence that - and
5 especially some of the evidence that Dr. Euler gave on
6 the Chapleau Reserve - it would seem to me that in
7 what -- I guess a lot of my concept of what a clearcut
8 is has been somewhat redefined and I think quite often
9 people talk about clearcuts as if they are something
10 that somebody has mowed down like a lawn and from --

11 Q. Dr. Eedy, with the greatest respect,
12 I asked you a very simple question and the simple
13 question was: Is extent practical used in the same
14 way?

15 I understand you want to say these things
16 but I've got a limited amount of time here and I really
17 want to just deal with the question. I'll give you
18 lots of time if I leave you with an open-ended
19 question, but that was a very simple question.

20 A. I'll agree, that extent practicable I
21 see as being a forest planning issue.

22 Q. Okay. And then you also say that
23 these residual stands should be left around significant
24 wetlands. What is a significant wetland in the area of
25 the undertaking? How do you propose to define that?

1 A. Well, from -- I realize that the
2 classification system has not gone into the north, but
3 I feel that, in my view, significant wetlands is what
4 by the classification system would probably be a class
5 1 or 3 wetland.

6 Q. But we haven't got a way to define a
7 class 1 to 3 wetland at the present time, for areas on
8 the Shield?

9 A. Yeah. Well, even in the south I
10 think my experience has been that when two people go
11 out and classify a wetland they come up with different
12 classifications.

13 Q. It's my experience also, but let's
14 not deal with that right at the moment. What I'm
15 dealing with is your witness statement here and you're
16 saying we should leave residual vegetation around areas
17 of significant wetland.

18 A. Well, I think --

19 Q. And I want to know what you're seeing
20 we should leave that around. What are they? What are
21 these significant wetlands?

22 A. This comes into your concept of
23 determining areas of concern based on a site-specific
24 basis, these could be areas which have a particular
25 habitat value or they could be areas which are of a

1 certain size of wetland or of a certain type of plant
2 community in it.

3 Q. So to make that operational from a
4 management point of view, that has to be defined and it
5 hasn't been defined at this time, as far as you know?

6 A. I certainly worked in areas where the
7 Ministry has said, you know, this is a significant
8 wetland, we expect you to protect that in your planning
9 for the area.

10 Q. But what happens when your local
11 chapter of Ducks Unlimited comes in and says: We think
12 this is a significant wetland, and the forest company
13 or the Ministry says we don't think it is. How is that
14 going to be resolved?

15 A. Well, I think that's really a
16 planning and policy issue.

17 Q. And you have nothing to lend to us
18 based upon your experience in terms of how significant
19 wetlands should be defined in the area of the
20 undertaking?

21 A. I don't think as a specific thing
22 that one can put down on a piece of paper and say if a
23 wetland meets these three points it's a significant
24 wetland. I think this requires some amount of
25 judgment, it has to be put in perspective of what's in

1 the area.

2 If there are hundreds of wetlands within
3 a thousand hectare area, I think they become much less
4 significant than if there's only one and this is
5 certainly seen, I know in southern Ontario where, for
6 instance, in Metro Toronto in the northeast there is an
7 area which is looked upon as being a bog and maybe one
8 of the few in this whole region of the country, and
9 because of that it's an environmental sensitive area
10 and it's designated as this.

11 If one were to go into northern Ontario,
12 I am sure that that particular bog wouldn't be
13 particularly sensitive -- significant because it would
14 be one of many.

15 So, you know, it really is something one
16 has to look at on a site-specific basis and rely, to a
17 large extent, on the expertise that resides in the
18 district or regional biology level of the Ministry or
19 with other naturalists or whatever in the area.

20 MR. HANNA: Madam Chair, I just have two
21 more questions on this one and I will be ready for a
22 break, if that's all right.

23 MADAM CHAIR: All right.

24 MR. HANNA: Thank you.

25 MADAM CHAIR: Two short questions, Mr.

1 Hanna?

2 MR. HANNA: I will make them short, yes.
3 I'll read them verbatim, I won't even put any pizzazz
4 on it.

5 Q. How much residual vegetation is
6 necessary to be left around significant wetlands?

7 DR. EEDY: A. Again, this I guess is
8 something that needs to be somewhat site-specific
9 depending on how important the vegetation is to the
10 integrity of the wetlands and how sensitive to things
11 such as blowdown or other damage and this sort of
12 thing.

13 Q. Are you aware of any guidelines that
14 would be applicable or - I hate the word guidelines but
15 I have to use it - or other management tools that might
16 be used to make these determinations, or that you've
17 assumed will be used in arriving at this conclusion in
18 your witness statement?

19 A. Well, I think I'd to defer a little
20 bit maybe to Dr. Schiefer on the water guidelines as to
21 wetlands. I think I'm more looking at whether the
22 aquatic guidelines would fit these as well.

23 Q. So that was your assumption, that in
24 terms of defining those buffer strips the aquatic
25 guidelines would be the operative tool.

1 A. Yeah. I don't know of specific
2 guidelines for wetlands.

3 DR. SCHIEFER: A. If I could just add a
4 little to that answer. Where wetlands are defined as
5 fish habitat, clearly the fish habitat guidelines do
6 apply and there are prescriptions for buffer zones for
7 those wetlands, but only where wetlands are defined as
8 fish habitat.

9 Q. Thank you, Dr. Schiefer.

10 DR. EEDY: A. I guess the other place
11 where there would be buffers is if they are defined as
12 areas of concern.

13 Q. But there is nothing in the areas of
14 concern that say the width of a buffer strip. The
15 question was: How do we decide how wide a buffer
16 strip, what have we got to tell us how wide the buffer
17 strip should be, and the answer is: We've got the fish
18 habitat guidelines when it's fish habitat, otherwise we
19 are out to sea.

20 A. I guess it would be site-specific
21 determination.

22 MR. HANNA: Madam Chair, those are my
23 questions on that point.

24 MADAM CHAIR: Thank you, Mr. Hanna.

25 The Board will be back in 20 minutes.

1 ---Recess taken at 10:25 a.m.

2 ---On resuming at 10:55 a.m.

3 MADAM CHAIR: Please be seated.

4 MR. HANNA: Madam Chair, at the break I
5 received a fax from Mr. Turkstra requesting me to, as
6 quickly as possible, clarify matters with Dr. Thomas in
7 terms of his status as a Federation witness and to
8 inform the Board immediately and based on the outcome
9 of that, then Mr. Turkstra will decide whether or not
10 it's appropriate for him to contact Dr. Thomas.

11 You had indicated when this matter was
12 raised last week that no party should contact Dr.
13 Thomas until the matter was solved or resolved. I
14 would like to have the Board's permission at this time
15 to proceed to contact Dr. Thomas and try and have the
16 matter clarified as expeditiously as possible.

17 MADAM CHAIR: Yes. We received Mr.
18 Turkstra's opinion as well. If the other parties want
19 a copy of that, they can get in touch with our
20 assistant Trudy Taylor.

21 Last week, obviously the Board didn't
22 find it helpful in the least that we had two parties
23 standing up confusing us about what had been said to
24 them by Dr. Thomas and so forth, and we would still
25 like at some point to get to the bottom of that and

1 find out what the confusion was about. But at this
2 point we are willing to have Mr. Hanna contact Dr.
3 Thomas quickly. We would like to have this resolved by
4 the end of the week with respect to whether or not Dr.-
5 Thomas is going to appear as a witness on behalf of the
6 OFAH, and then Mr. Turkstra may not be required to do
7 anything, or will then get in touch with Dr. Thomas
8 himself. But we don't want parties coming back to the
9 Board with opposite points of view on what's taken
10 place.

11 MR. HANNA: Thank you, Madam Chair.

12 MADAM CHAIR: So if you can resolve that
13 as quickly as possible, Mr. Hanna.

14 MR. HANNA: Madam Chair, I will do my
15 best to resolve it by the end of the week. The only
16 point that I would say is that Dr. Thomas is a research
17 biologist and they aren't always in their office and
18 sometimes they're difficult to get ahold of, but I will
19 take every step possible to get it resolved by the end
20 of the week.

21 MADAM CHAIR: Well, the Board is very
22 cognizant of Ms. Swenarchuk's remarks and the fact the
23 first intervenor's case will be starting in the fall
24 and preparing it now, it's obviously important that
25 they have the benefit of knowing--

1 MR. HANNA: We recognizeng that also.

2 MADAM CHAIR: --if and when this witness
3 will be coming before the Board.

4 MR. HANNA: Thank you, Madam Chair.

5 Q. Dr. Eedy, I would like to continue on
6 with the five points at the bottom of page 6, actually
7 I believe now we're over onto the top of page 7.

8 And I see the term extent practical in
9 point four also and, again, your comments would apply
10 there as well?

11 DR. EEDY: A. Yes.

12 Q. Now, the last point indicates that
13 there should be a balance of even-aged classes. Again
14 the operative statement here is balance. What do you
15 mean by a balance in this context?

16 A. Yes. I hope that I haven't confused
17 anyone because I'm using this in my own terminology
18 rather than potentially a strictly forestry
19 terminology.

20 Basically it gets back again to the
21 concept of diversity, in that what I mean is, over a
22 large area if one is harvesting and managing the
23 forest, that as much as possible there should be a
24 balance of the times that specific areas are cut.

25 Q. Would you agree then that the balance

1 must be evaluated over the entire area of a forest
2 management unit?

3 A. That's what I'm looking at.

4 Q. And would you agree that it also must
5 be evaluated over an entire rotation of the forest?

6 A. Yes.

7 Q. And in suggesting that there's a
8 balance of even age-classes, you're referring here only
9 to the boreal forest?

10 A. Yes.

11 Q. And you're not suggesting that the
12 balance should consist only of trees up to age of
13 rotation, but perhaps trees well be beyond the age of
14 rotation?

15 A. Yes, there should be, I guess, areas
16 with different ages of trees, yes.

17 Q. Now, in terms of the Great Lakes/St.
18 Lawrence Forest, what do you wish to see in terms of
19 balance of stand types?

20 A. Well, I don't think the same sort of
21 concept applies because the timber harvesting is
22 considerably different and it's more on a woodlot
23 management sort of basis.

24 My emphasis was to a large extent placed
25 on the clearcutting approach and when I say this, this

1 is more what I'm talking about.

2 Q. Yes, I understand that, but my
3 question was -- I accept the statement in five really
4 deals with the boreal forest.

5 A. Yeah.

6 Q. What I'm asking you: Is there a
7 comparable statement to five that would apply to the
8 Great Lakes/St. Lawrence Forest, and I'd prefer if it
9 could be in something about the same number of words.

10 A. I'm sorry, but I guess as a specific
11 sort of one-sentence recommendation I can't think of it
12 right at the moment. I guess the concept, again, is to
13 look at the diversity of what is going on.

14 In southern Ontario, I think it's
15 important to have woodlots interspersed with areas of
16 agricultural use or other uses, and this gives us that
17 kind of diversity. I'm not sure...

18 Q. Well, maybe you can give some thought
19 to that and if before you finish today you come up with
20 good wording for that, I'd be happy to hear what
21 general principle you would have in terms of balancing
22 stand types in the Great Lakes/St. Lawrence Forest.

23 I'd like to move to some details in
24 Section 1.2, particularly this matter of the comparison
25 between natural and timber harvest disturbances, and

1 looking on page 1 you indicate in the last sentence
2 that:

3 "Timber harvest activities duplicate in
4 approximate terms natural disturbances."

5 The first paragraph there, the last
6 sentence. Page 1, Section 1.2, first paragraph, last
7 sentence.

8 A. I'm sorry, I was writing down to
9 think about...

10 Q. I'm sorry, I didn't realize.

11 A. This is Wildlife in Ontario?

12 Q. Now you've got me.

13 MR. CASSIDY: It's the sentence just
14 above that.

15 MR. HANNA: Q. I'm looking at page 1.
16 Oh yes, sorry, I see.

17 DR. EEDY: A. "Timber harvest activities
18 as managed in the area of undertaking
19 duplicate..."

20 Q. Yes. Okay. Would you agree that
21 timber management may or may not duplicate these
22 natural disturbances in terms of forest succession
23 depending upon the intensity and nature of timber
24 management activities on any site?

25 A. Again, this is a difficult question

1 to be -- to give sort of one specific answer to because
2 I feel that activities such as forest fires or diseases
3 result in a variety of different successional forests
4 as well.

5 I'm certain that different timber
6 harvesting activities result in a variety of different
7 types of succession and in some cases these would be
8 different than the fire to a greater or lesser extent
9 in any particular place.

10 Q. But, Dr. Eedy --

11 A. I don't think anything is absolutely
12 the same.

13 Q. Dr. Eedy, my question was very
14 simple. It says: Would you agree that timber
15 management may or may not duplicate these natural
16 disturbances in terms of forest succession depending
17 upon the intensity and nature of the timber management
18 activities?

19 Now, if you're saying that the natural
20 activities are so undefined and so variable and the
21 timber management activities are so undefined and so
22 variable that they both define the total universe well,
23 okay, but can't you see that there are possibilities
24 where the two may diverge?

25 A. Yes, I agree with the qualifications

1 that you have put on the statement.

2 Q. Have you undertaken any studies or
3 are you aware of any studies of intensively managed
4 areas in terms of their wildlife assemblages compared
5 to the pre-management assemblage or the wildlife
6 assemblage in adjacent areas?

7 A. I guess the one example would be the
8 Chapleau Forest that I'm aware of.

9 Q. Are you suggesting that the Chapleau
10 Forest is an intensively managed area -- forest
11 management area as compared to the adjacent areas?

12 A. I'm not sure that it would be
13 intensively managed, it certainly is an area that's
14 been managed.

15 Q. Well, let me read you the question
16 again. Have you undertaken any studies or are you
17 aware of any studies of intensively managed - and when
18 I say intensively managed I'm talking about timber
19 managed - areas in terms of their wildlife assemblages
20 compared to the pre-management assemblage or the
21 wildlife assemblage in adjacent unintensively managed
22 areas?

23 MADAM CHAIR: Mr. Hanna, I don't
24 understand that question.

25 MR. HANNA: I'm asking the witness, Madam

1 Chair, if he's aware of any studies or he has
2 undertaken any studies himself that support the
3 contention that timber management activities,
4 particularly intensive timber management activities,
5 replicate the natural condition and that that
6 condition -- or don't replicate the natural condition,
7 excuse me, and that condition is reflected in the
8 wildlife populations?

9 MADAM CHAIR: I think in the evidence the
10 only definition the Board has before it of intensive
11 management was with respect to regeneration and that
12 was with tending and planting.

13 MR. HANNA: That's what I'm referring to,
14 Madam Chair.

15 MADAM CHAIR: And that's what you're
16 referring to?

17 MR. HANNA: Yes. Tending and protection,
18 which changes the forest succession.

19 DR. EEDY: I guess in the studies that we
20 looked at there were some studies which indicated that
21 for periods of time there were differing effects on
22 wildlife which would be different than wildlife in an
23 area which had not been harvested.

24 Some of these effects were beneficial and
25 some were adverse depending on the species and period

1 in succession after the harvesting occurred, and the
2 same would apply to other timber management activities
3 depending on what they are and what their effect is on
4 the resulting succession in forest.

5 MR. HANNA: Q. And which studies are you
6 referring to, Dr. Eedy?

7 DR. EEDY: A. Well, I would have to --

8 Q. What section are you referring to?

9 A. I think actually these things are
10 somewhat spread through several of these sections.
11 There's a fair bit of it in Section 1.2 discussing
12 reports which are both beneficial and adverse effects,
13 and how these change with time.

14 Q. I didn't see any of these references
15 that dealt with intensive management of stands. Can
16 you tell me which ones you're referring to, because I
17 couldn't find them, dealing with the issue of stand
18 conversions, intensive management?

19 A. Okay. Well, this again is your
20 definition of intensive management, I would --

21 MR. FREIDIN: I'm just wondering, was the
22 question equating intensive management with stand
23 conversion, or is that different situations you're
24 referring to, Mr. Hanna?

25 MR. HANNA: That's a fair statement, Mr.

1 Freidin. They both come into effect and I'm dealing
2 particularly with intensively managed stands at the
3 present time which often leads to stand conversion, but
4 not necessarily.

5 MR. FREIDIN: Okay.

6 MR. HANNA: Q. I'm am still waiting
7 for --

8 DR. EEDY: A. Yeah. I don't know that I
9 could refer to a specific.

10 Q. Are you familiar with, for example,
11 the paper by Neilson looking at effect on bird
12 assemblages in intensively and unintensively managed
13 stands?

14 MADAM CHAIR: Excuse me, what's an
15 assemblage, Mr. Hanna?

16 MR. HANNA: Q. Dr. Eedy, what's an
17 assemblage?

18 DR. EEDY: A. Again, I would presume
19 that means or is referring to something in the area of
20 a guild as we were discussing before, basically being a
21 group of animals that have similar habitat preferences.
22 I don't have the Neilson paper referred to.

23 Q. Well, when you get a moment it is in
24 the Panel 12 witness statement of Ministry of Natural
25 Resources and it does deal with that particular issue.

1 There's also an article in there on page 452 and 393
2 that both deal with the matter and indicate some of the
3 negative aspects of it.

4 MR. CASSIDY: Are you asking the witness
5 to review this, because you're haven't asked a
6 question, or --

7 MR. HANNA: No, just for his edification.

8 DR. EEDY: I think perhaps as a
9 clarification, I know in our discussion we have talked
10 about both negative and positive effects that are in
11 the literature, and I would say that any particular
12 forest, if you're changing the type of the forest, it
13 will benefit some species if they prefer the type that
14 it's changed to; and it will adversely impact on others
15 if they don't, I think that's a general principle.
16 There are species which are adapted to different types
17 of habitat.

18 MR. HANNA: Q. But back to your general
19 principle of diversity, is it not a fair statement that
20 often in intensively managed stands that the diversity
21 of wildlife populations can be reduced?

22 DR. EEDY: A. On a local basis. Again
23 though, our concept is that if one has these kinds of
24 stands and has a variety of age-classes and this sort
25 of thing that on a broader basis one is bringing the

1 diversity back.

2 Q. Yes. Let's deal with that matter of
3 local basis. It's dealt with in the next paragraph on
4 page 1, and you indicate that:

5 "Although local populations may be
6 affected by timber harvesting activities
7 for relatively short periods of time,
8 provincial wildlife populations are not
9 generally affected in a material manner."

10 Are you familiar with the concept of
11 averaging and the difficulty that this poses in terms
12 of assessing environmental impacts across an area such
13 as the Province of Ontario?

14 A. Yes. I see difficulties in that,
15 yes.

16 Q. In fact, you had indicated you had
17 read the testimony of Dr. Baskerville; correct?

18 A. Mm-hmm.

19 Q. He spoke quite extensively on the
20 matter -- the difficulties and actually the pitfall of
21 averaging; correct?

22 A. Yes. I don't -- I guess see, again,
23 the necessity of getting absolute numbers or coming up
24 with an average population or --

25 Q. Dr. Eddy, with the greatest respect,

1 it has nothing to do with absolute numbers, averaging
2 has to deal with the importance of incremental changes
3 on a local level that become obscured at a provincial
4 level; is that not correct?

5 A. Yes. The point though I think is
6 that it's the provincial level that is important and if
7 the local -- the local changes can be important,
8 especially to local people or on a local basis, but on
9 a more ecological perspective it's the provincial or
10 even larger area changes that are important.

11 Q. Dr. Eedy, you're a member of the
12 Ecological Advisory Committee for Halton Region; are
13 you not?

14 A. I was.

15 Q. You've had experience with it?

16 A. Yes.

17 Q. If I was to come into your region and
18 say: You've got a small bog with some locally rare
19 species but provincially we have got lots of them,
20 don't worry about it, what do you think your committee
21 would have said?

22 In fact, I could come in and argue a lot
23 of things like that; couldn't I, if that was my basis
24 for evaluating impacts in this province?

25 A. Again, this is getting into a social

1 issue rather than an ecological issue, and there's a
2 great deal of this occurring in areas which are termed
3 such as a Carolinian Forest where there are species in
4 Canada which, because of the Great Lakes and the
5 geographical boundaries are considered regionally or
6 locally rare, to a large extent they may just happen to
7 be at the edge of their distribution and be quite
8 common elsewhere, but --

9 Q. But they're still significant?

10 MR. CASSIDY: Mr. Hanna, you've
11 interrupted the witness time and time again.

12 DR. EEDY: This is what I'm trying to
13 differentiate between.

14 MR. CASSIDY: Let him answer.

15 DR. EEDY: I think on a social basis
16 these could be significant to people who find it
17 important to have a rare species or something which is
18 dislocated or disjunct from its normal distribution in
19 their backyard.

20 This is particularly true with bird
21 watchers who -- many of whom spend their life trying to
22 add one or two more species to the list, but I know
23 people who travel all over the place in order to do
24 this.

25 From an a ecological perspective I think

1 it's somewhat different though because whether that
2 species is found in southern Ontario as well as six
3 states in the United States ecologically isn't that
4 important, but to somebody who lives in Burlington it
5 might be very important because they found it in their
6 backyard. They don't care whether it's well
7 distributed throughout the States, but that's a social
8 issue, not an ecological issue, and I'm really trying
9 to deal with the ecological issues here.

10 MR. HANNA: Q. So Dr. Eedy, summarizing
11 then what you've said, that your statement here that
12 although local populations may be affected, provincial
13 populations are not generally affected in a material
14 manner, you're speaking of that solely from a
15 ecological point of view and you're not considering the
16 social aspect in any way whatsoever?

17 DR. EEDY: A. Solely from an ecological
18 perspective.

19 Q. And you're not suggesting in any way
20 whatsoever; are you, that the social impact or social
21 aspect of evaluating those local impacts is critical?

22 A. I'm not suggesting that it's not or
23 that it is.

24 Q. Now, another issue I would like to
25 deal with with respect to these disturbances is that

1 you suggest that these impacts will be for relatively
2 short periods of time; correct?

3 A. Yes.

4 Q. Would you not agree that this comment
5 is only valid from a static perspective? If one were
6 to look at the forest management unit and to look at
7 timber management disturbances over the rotation of the
8 forest, one could conclude in some cases that the
9 disturbance is broad scale and the effects are long
10 lasting, at least for one rotation of the forest; would
11 you not agree?

12 A. I'm not sure because from my
13 perspective it is not static it's very dynamic and that
14 is the whole crux of the issue, is that when one
15 harvests the forest it renews itself and this is
16 something which is happening either naturally in the
17 events of fires, and I think as we got into in some of
18 the previous cross-examination as well as previous
19 panels' statements, there has been significant
20 reduction in this kind of disturbance in the province,
21 and my perspective is that harvesting has replaced part
22 of this reduction, and as a consequence it is very
23 dynamic, one returns the forest to an early succession
24 and the forest grows back to mature trees. I'm not
25 quite sure how that is static.

1 Q. And the impact of those activities
2 are not short term, those impacts are there until you
3 go back and cut the trees again?

4 A. If one defines impacts as being a
5 change, generally I would call that an effect. The
6 impact usually describes some value judgment, but I
7 would say the impacts occur and they can be beneficial and
8 they can be adverse, or they can be both.

9 Q. And if we change the stand, the
10 impact can be quite long lasting if it's a conversion
11 of a stand and I'm concerned about a particular species
12 of wildlife?

13 A. You mean -- you're saying that for a
14 particular species one could go out and choose a
15 particular species which, if one changed the type of
16 habitat that was there, would be impacted on?

17 Q. Let's take one you're familiar with,
18 morning warblers and I go out and I change the habitat
19 from a mixed wood forest to a conifer dominated forest
20 and I have a significant impact on the breeding density
21 of morning warblers. That effect is going to be there
22 until I go in and alter the structure of that forest;
23 is it not?

24 A. On a local basis, yes.

25 Q. I'm turning to page 2 under the --

1 just above Section 1.2.1 you state:

2 "This raises two issues; the comparison
3 of the size of the areas affected or
4 disturbed and a comparison of the
5 similarity of the resultant forest
6 habitat."

7 Now, would you not agree that we need to
8 look at not only the sizes of the area disturbed but we
9 also must look at that area that's disturbed in terms
10 of its shape and distribution from a wildlife
11 perspective?

12 A. That stand as well, yes.

13 Q. Have you looked and undertaken in
14 your analysis the shape and distribution of natural
15 fires and other disturbances in the province as
16 compared to similar types of disturbances from timber
17 management?

18 A. I have not personally looked at that,
19 I have looked at some of the evidence on what the
20 effects of fires are.

21 Q. The evidence you're referring to,
22 is...?

23 A. I guess it's not specifically on
24 shapes.

25 Q. The evidence that you're referring

1 to...?

2 A. The basically statistical evidence on
3 sizes of fires and areas of fires.

4 Q. Is it your experience that fires tend
5 to have well-defined rectilinear borders in most cases?

6 A. No.

7 Q. Do insect infestations?

8 A. Again, I would presume not. I have
9 not spent a great deal of time actually going out and
10 measuring the areas or looking at the borders of areas
11 infected by insects.

12 Q. You would agree, however, though that
13 edge is an important factor in determining wildlife
14 response to its habitat in many cases?

15 A. Yes.

16 Q. And you would agree that length of
17 edge increases as the irregularity of the shape of
18 disturbance increases?

19 A. Yes.

20 Q. I'm looking at the bottom of page 2
21 there you indicate that there is a medium that benefits
22 both wildlife and other forest users. You're referring
23 here to the interspersed of different stands and the
24 patchiness; correct?

25 A. That's correct.

1 Q. Would not relatively small scattered
2 dispersed forest stands favour many other non-timber
3 users of the forest such as recreationists,
4 photographers, et cetera?

5 A. I can certainly think of examples
6 where it wouldn't. Part of my concern over something
7 like that would be basically that the amount of things
8 like access roads and whatever would increase
9 substantially and -- I don't know, I think that's more
10 of a planning issue.

11 Q. Your statement, Dr. Eedy, it wasn't
12 something I thought up, you're the one that's talking
13 about other forest users. I understand it's nice to
14 evade questions but it is your words.

15 A. Yes. I think -- again, I'm saying in
16 very general terms that I think there is a medium. I
17 don't think one can manage for only one use, but within
18 this report I'm specifically talking about wildlife.

19 Q. No, you're referring here, "...will
20 benefit other forest users", and I'm asking you about
21 other forest users, and I am asking you what other
22 forest users are you referring to then?

23 A. Well, you know, in a generic sense as
24 I responded to your question, I can see that what
25 you're saying could be beneficial to some and could be

1 quite adverse to others. It depends a lot on what the
2 perspective is.

3 MADAM CHAIR: I thought in this
4 paragraph, my reading of it, Dr. Eedy, was that you
5 were referring to the forest industry as being the
6 other user.

7 DR. EEDY: That I guess specifically
8 would be what I was referring to when I mentioned it,
9 but I think it does apply in general. You know, I
10 think that forest management has to be looked at from a
11 multiple user perspective and what I'm saying is that
12 if I were to look at it only as a wildlife biologist
13 and were to say I wasn't going to manage for any other
14 kind of use, there may be certain ways I'd look at it,
15 but I don't think that that's a reasonable perspective.
16 I think one has to balance all of the different kinds
17 of uses.

18 But then at the same extent I don't think
19 I'm prepared to say exactly what point. I think the
20 various users gain or lose from different harvesting
21 patterns or perspectives. I think that has to be
22 something that's taken the Board, I guess a couple of
23 years, to hear all of these various different
24 perspectives and I'm certainly not going to try to
25 summarize it all in a few minutes.

1 MR. HANNA: Q. Turning to page 3, the
2 first paragraph at the top, you indicate that:

3 "Large clearcuts can result in excellent
4 moose habitat."

5 Would you agree that they need not
6 necessarily result in excellent moose habitat though?

7 DR. EEDY: A. I think one can come up
8 with almost examples on a specific basis that would
9 support almost any range of conclusions.

10 Q. So that the decision has to be made
11 again site-specifically?

12 A. I believe so, yes.

13 Q. Looking at the paragraph on page 3,
14 the major paragraph there in the middle of the page,
15 there's much discussion of the matter of winter habitat
16 for moose. Would you not agree though that the quality
17 of the habitat in all seasons of the year influences
18 the vitality and productivity of a wildlife population?

19 A. Yes, I agree with that. I think what
20 I was saying was that -- was that winter, and
21 especially the late parts of winter, are the most
22 critical because that's the period of time that the
23 animals find it most difficult to survive in.

24 Q. So what you're saying is that one
25 habitat variable, such as winter habitat, may have a

1 greater influence than another?

2 A. It's quite possible.

3 Q. But would you not agree that rarely
4 does one habitat variable alone define the size and
5 health of wildlife populations?

6 A. One habitat variable alone would not
7 define the size and health of a wildlife population.

8 Q. And that you need to look at habitat
9 requirements in all seasons of the year?

10 A. Yes.

11 Q. Now, you mentioned that the
12 guidelines may be overly conservative and you say that
13 such guidelines -- and I believe you're referring to
14 the moose guidelines, I'm looking in the middle of that
15 paragraph, two thirds of the way down.

16 A. Yes, that's correct.

17 Q. "Such guidelines are necessarily
18 conservative in areas where moose
19 wintering habitat is absent or abundant."
20 Why would they be conservative if moose
21 wintering habitat is absent?

22 A. Because if the purpose of the
23 guidelines is primarily to protect wintering habitat
24 and if there is no habitat which is critical for a
25 moose wintering in that area, there really wouldn't be

1 any need to protect the non-existent habitat.

2 Q. You already said the habitat wasn't
3 there, so you couldn't protect something that wasn't
4 there?

5 A. No, that's exactly what I mean.

6 Q. Well, then they wouldn't be overly
7 conservative, they wouldn't be anything to protect. I
8 don't understand what you mean.

9 A. Well, if one were to apply the
10 guidelines per se, and I think I'm thinking in
11 particular about the 80 to 130-hectare cutting limits,
12 I guess --

13 Q. For winter --

14 A. If one were to -- well, what I'm
15 saying is that this cutting limit was derived primarily
16 from a reference which indicated that in areas of prime
17 wintering habitat that that was a good goal to be
18 aiming for.

19 Q. Which reference are you referring to?

20 A. Now, if there is not -- I think the
21 reference is there. I guess one would have to go back
22 to the original.

23 Q. Are you referring to Peak's work in
24 Minnesota?

25 A. I don't have reference to that, so I

1 don't know. I know there was a reference, I can't
2 remember the exact reference.

3 Q. Are you certain it was winter cover?

4 A. It was winter habitat.

5 Q. That Peak's work was dealing with?

6 A. I don't have reference to Peak so I'm
7 not...

8 Q. Now, let's deal with this situation.
9 So you're saying there's no winter habitat there?

10 A. If there is no winter habitat there
11 and one were to apply guidelines to protect winter
12 habitat, it would be overconservative.

13 Q. But how can you protect something
14 that isn't there, Dr. Eedy, that's why I'm at a loss.

15 A. That's exactly what I'm saying. Why
16 protect it if it isn't there, you're being
17 overconservative. It's like saying, I'm going to
18 protect this swamp here but, however, there is no swamp
19 in that particular location but I'll protect it anyway.
20 That's being overconservative.

21 Q. Would I make a swamp and then protect
22 it?

23 MADAM CHAIR: Mr. Hanna, the Board is
24 understanding I think what Dr. Eedy is saying. He's
25 talking about the application of the guidelines

1 uniformly, he's talking about applying the guidelines
2 regardless of what situation might exist.

3 MR. HANNA: Madam Chair, I appreciate the
4 problem of the strict application of the guidelines and
5 I just want to make sure that that's what we're talking
6 about because the words here don't say that, the words
7 here say, "If moose wintering habitat is absent...",
8 and that's what I'm having problems with.

9 Now, if he's saying there is potential
10 moose wintering habitat there that is not being
11 utilized and you protect it that would be overly
12 conservative, fine, but that's not what I'm hearing the
13 witness say. I want to make sure I understand the
14 witness' -- I don't want to read into what he's saying,
15 I want to understand clearly what he's saying.

16 DR. EEDY: What I'm saying is if in that
17 particular location there is no critical need for moose
18 habitat, meaning that there either aren't the species
19 there to utilize it or there is abundant moose habitat
20 and there's no particular area that's critical to the
21 survival of the species, then one doesn't have to apply
22 strict guidelines in protecting that habitat.

23 MR. HANNA: Q. Okay. So the wording
24 here -- you're saying moose wintering habitat is
25 absent. Well, let's just say, if there isn't moose

1 wintering habitat we can't apply the guidelines because
2 there isn't any habitat; you'll accept that?

3 DR. EEDY: A. Yes.

4 Q. Okay. Now, if there is moose
5 wintering habitat there and it's not being used and the
6 guidelines were applied, you'd say that's overly
7 conservative?

8 A. Yes.

9 Q. Now, how do you know that moose
10 habitat is not going to be used in the next 15, 20
11 years, 30 years down the road without having looked at
12 the full dynamics of the forest, without having looked
13 at how that population is likely to change over time,
14 without having looked at it comprehensively the moose
15 range?

16 A. Well, that again is in my definition
17 saying, if there is no critical wintering habitat or if
18 there is, on the other hand, an over abundance of moose
19 wintering habitat as compared to the numbers of animals
20 that are using it, then one doesn't -- or one shouldn't
21 be applying the guidelines as strictly.

22 Q. So the only way one could come to
23 that determination would be able to look at - within
24 the area you're managing, a forest management unit -
25 the supply of winter habitat available now and over the

1 next rotation of the forest and look at how I expect
2 the needs of my -- how I expect my population to
3 change and how I expect its needs will follow
4 concurrently. Would you agree with that?

5 A. Yes, that certainly is an approach to
6 managing it.

7 Q. Is there another approach? Is there
8 some other way to decide whether it's conservative or
9 not?

10 A. I guess that it depends on what you
11 mean by knowing, you know, or -- you know, one would be
12 required to know certainly something about the
13 populations and the habitat and their use of the
14 habitat.

15 Q. And it would be on that basis you'd
16 decide whether or not the guidelines were conservative
17 or not or the supply of that particular habitat
18 component was in excess or in shortage?

19 A. Yeah. Well, this is -- again, this
20 is what we've been saying is that this needs to be a
21 site-specific decision based on knowledge of the area.

22 Q. But I was saying more than that, I
23 was saying it has to be at a forest management unit
24 level, but that also you'd have to look at that supply
25 over time.

1 A. Well, certainly--

2 Q. And that time being the rotation of
3 the forest.

4 A. --certainly needs to be taken into
5 consideration, yes.

6 Q. The next sentence indicates that:
7 "This conservatism also results from the
8 use of the forester's definition of
9 clearcut in areas where residuals result
10 in excellent moose habitat."

11 And I understand what you're saying,
12 there's two definitions of clearcuts and that can lead
13 to misunderstandings between biologists and foresters;
14 correct.

15 A. Yes.

16 Q. Would you not agree that if thge
17 biologist spoke -- rather, in terms of clearcuts spoke
18 in terms of the key habitat components as defined in
19 terms of forest structure, that definitional problems
20 such as clearcut would be effectively overcome?

21 A. Yes.

22 Q. Now, this is an issue that I have
23 dealt with before before this panel and that is the
24 matter of flexibility, and I believe at the last
25 paragraph on this page you are advocating increased

1 flexibility for local managers to deal with
2 site-specific conditions; correct?

3 A. Correct.

4 Q. And you're arguing this is a basis
5 for deviating from strict adherence to moose
6 guidelines; correct?

7 A. Yes.

8 Q. Now, in the habitat supply analysis
9 approach, is this not dealt with by establishing at the
10 outset on a local site-specific basis specific
11 population objectives and then establishing the supply
12 of habitat needed to sustain those populations?

13 A. From a wildlife perspective?

14 Q. Yes.

15 A. Yes.

16 Q. So that implicit in that is the
17 flexibility you're requesting?

18 A. Yes.

19 Q. And this allows the local forest
20 manager to decide on a site-specific basis the habitat
21 requirements without rigidly adhering to, say, a fixed
22 clearcut standard; does it not?

23 A. Yes.

24 Q. Would you agree that there are
25 circumstances whereby the clearcut standard of 130

1 hectares may be exceeded and still achieve the desired
2 wildlife objectives?

3 A. Yes.

4 Q. Are there circumstances where
5 clearcut sizes less than 130 hectares may be desirable?

6 A. I think so, yes.

7 Q. And these decisions can only be made
8 by examining the forest structure over the forest
9 management unit in time and space?

10 A. Correct.

11 Q. Now, I would like to move to another
12 favourite topic of mine and that is pine marten. You
13 talk about marten in Section 1.22 on page 4, and you
14 make reference to the Snyder and Bissonette study and
15 particularly their observation, at one point in time at
16 least, that marten could be supported by residual
17 mature stands of less than 25 hectares.

18 Would you agree that more than simply Mr.
19 the area of the residual stand must be considered in
20 terms of assessing whether or not it could sustain pine
21 marten?

22 A. Yes.

23 Q. What separation distance among
24 residual stands is necessary in order to sustain pine
25 marten populations in 25 hectares?

1 A. That I couldn't --

2 Q. It's an important issue?

3 A. Yes.

4 Q. If one were to manage for a maximum
5 marten population, would you manage the forest for
6 residual forest stands 25 hectares in isolated patches
7 scattered over large clearcuts?

8 A. If that were the only thing one were
9 managing by, no.

10 Q. That was my question. So you would
11 agree that in order to prescribe the habitat
12 requirements for pine marten one must first ascertain
13 the population size and the animal harvest rate
14 desired?

15 A. I'm not -- again, I have difficulties
16 looking at things in terms of animal harvest rates and
17 that sort of thing from a -- I look at it more from a
18 wildlife biology or ecology perspective.

19 Q. Well, let's --

20 A. I'm not suggesting that one should
21 manage the forest in order to trap the most marten.

22 Q. Okay. Well, let's -- I'll take out
23 the word harvest, because you've made it clear that you
24 are not supportive of consumptive use and we'll talk
25 about mortality rate, okay?

1 A. Mm-hmm.

2 Q. It could be natives or it could be
3 natural factors, all of those other acceptable things,
4 okay.

5 Now, if you were going to look at and you
6 wanted to maximize marten population, or I'll say
7 optimize, okay - we'll put in some tradeoff and balance
8 there - one must first ascertain the population size
9 and the acceptable mortality rate in order to define
10 the habitat requirements?

11 A. Yeah.

12 Q. Do you agree?

13 A. Yes.

14 Q. Now, are you familiar with more
15 recent studies than that of Snyder and business son net
16 Bissonette demonstrating that pine marten populations
17 in the areas that they conducted their studies are
18 expected to go extinct?

19 A. I'm familiar with some of the studies
20 that have gone on in Newfoundland.

21 Q. And the prognosis for pine marten in
22 Newfoundland is not bright?

23 A. Is not bright, right.

24 Q. So one would be very -- must be very
25 cautious when they see a statement like residual areas

1 of less 25 hectares would be adequate for pine marten,
2 you have to be very cautious in using that sort of
3 information, one has be very careful in planning the
4 forest structure both for wildlife and wood?

5 A. Yes.

6 Q. And it's not a matter of whether to
7 harvest or not or whether to do any of the timber
8 management activities, it's how much, where and in what
9 pattern?

10 A. Yes.

11 Q. I'm afraid I'm going to take you into
12 another unpalatable area for you, but I'm going to talk
13 to you about moose kills. You refer to it on page 4 at
14 the bottom of the page, and you indicate that:

15 "The current status of the moose herd in
16 the province has increased
17 substantially."

18 Is it your view that the moose herd is
19 expanding consistently in all areas of the province?

20 A. I don't think one could broadly say
21 that, you know, every area is expanding or contracting.
22 I think this is generally over the whole area.

23 Q. Are there areas in the province where
24 the moose population is declining?

25 A. I'm sure there are. I don't know of

1 these specifically.

2 Q. You haven't undertaken any analysis
3 of that nature?

4 A. No.

5 Q. This is another example where
6 averaging could lead us to incorrect conclusions; is it
7 not?

8 A. I think if the population of moose in
9 Ontario is expanding that one can -- on a whole, one
10 can say that it's a relatively healthy population. I
11 don't think this is a wrong conclusion.

12 Q. My understanding of this is that
13 you're using the indication of the increasing moose
14 herd as a basis for arguing that good habitat must be
15 available.

16 A. That's correct.

17 Q. Now, moose don't range all over the
18 area of the province; do they?

19 A. No.

20 Q. There are very limited moose ranges
21 relative to the area of the undertaking?

22 A. You mean for individuals or for the
23 species?

24 Q. Yes, individuals.

25 A. Yes, relative to the area of the

1 undertaking.

2 Q. And if there is bad habitat somewhere
3 and that is having a negative effect, that may well not
4 be reflected in the provincial populations and will
5 only be visible at the local level?

6 A. Correct.

7 Q. So you can't make the conclusion that
8 good habitat must be available everywhere?

9 A. No, I don't think one could make that
10 conclusion for any species.

11 Q. Or that timber management necessarily
12 everywhere is producing good moose habitat?

13 A. I don't -- I'm talking more on the
14 broad range. I think that there is more beneficial
15 effects than there are adverse, but that doesn't rule
16 out that at some particular location or at some
17 particular time there may be adverse effects.

18 Q. Is it not possible that timber
19 harvesting could be adversely affecting the population
20 but other factors are having a more positive
21 compensating effect that cancel out or mask adverse
22 harvesting impacts?

23 A. I don't really believe that's true.

24 Q. Why not?

25 A. I just -- I can't think of what

1 other, you know, what other aspects would be creating
2 better habitat or...

3 Q. No, no, no. There's more than just
4 habitat that affect the population; aren't there?

5 A. Yeah.

6 Q. Mortality being an important one.

7 A. Mm-hmm.

8 Q. And you suggested earlier that one
9 way to get absolute control is to have no hunting.

10 A. Yeah.

11 Q. If we had no hunting in this
12 province, what would you expect would happen with the
13 moose herd?

14 A. I think it would ---that it would be
15 a lot more regulated by habitat than it is now.

16 Q. No, but what would happen in terms of
17 the size of the population; stay stable, decline?

18 A. In some areas I think it would
19 increase, if there is presently overhunting. I guess
20 part of the problem with that is that part of what
21 hunting may be doing is displacing other predatory
22 activities. I think there is a density at which the
23 moose population would not expand whether or not there
24 is hunting.

25 Q. Depending on the habitat?

1 A. Depending on the habitat.

2 Q. Right. And can you tell me in your
3 experience whether you have seen a major change in
4 moose habitat in the area of the undertaking within the
5 last 15 years?

6 A. I haven't really seen a major change.

7 Q. It's been more or less business as
8 usual when you look at it in a general way?

9 A. Like from what I've seen, yes.

10 Q. And yet there has been a 46 per cent
11 increase in the moose herd since 1981 to 1986. They're
12 obviously responding to something other than habitat;
13 aren't they, Dr. Eedy?

14 A. Well, I think it's quite normal for
15 populations to range and it's also quite normal for
16 estimates from surveys to range.

17 I'm not sure whether that's outside the
18 normal population dynamics that one would expect over a
19 period of time or whether it's outside of the ability
20 to estimate the populations.

21 Q. So you haven't looked at the
22 population dynamics, you haven't looked at the moose
23 population trends say over the last 20 years in the
24 province to see if this is simply just within a natural
25 variation or whether it's indicative of something?

1 A. No, I haven't.

2 Q. You realize, however, though 1991
3 was -- or 1981 was a major turning point in this
4 province in terms of regulating of hunting pressure in
5 this province, 1980 and '81?

6 A. Well, that's what basically it says,
7 that -- I guess the -- I don't know the exact
8 regulatory aspects, all I know is what we have said or
9 quoted here from the statistics, that there has been a
10 fairly substantial increase in hunter days and in moose
11 kills and at the same time there has been a population
12 increase.

13 Q. But there has been a difference in
14 terms of that harvest pressure; hasn't there, there's
15 been a major change in the way the harvest has taken
16 place in terms of the types of animals taken and the
17 distribution of that harvest; hasn't there?

18 A. I'm not really totally familiar with
19 the management of harvest -- hunting pressure and that
20 sort of thing and how it's changed over time.

21 Q. And so in basing your conclusion here
22 that there is good moose habitat available and using
23 this 40 per cent increase in moose kills, you're really
24 relying on the Ministry's evidence and you haven't
25 anything more to add to that?

1 A. That's correct.

2 Q. I'm not sure whether Mr. Lindgren
3 dealt with this or not, so I just wish to deal with it
4 now. Just to be clear, I'm looking at page 6, Dr.
5 Eedy, the first full paragraph there and you make
6 reference to a paper by Smith, 1988. It says that:

7 "Large clearcuts favour early
8 successional wildlife species."

9 I believe Mr. Cassidy came up with a copy
10 of that paper. What did Dr. Smith define as a large
11 clearcut in his study?

12 A. I would have to look at the paper to
13 see the exact number.

14 Q. Perhaps you could do that over lunch
15 and give that back to me.

16 MR. CASSIDY: Do you have it, Dr. Eedy,
17 because I don't have it. I don't have it to give you
18 over lunch hour.

19 DR. EEDY: I'll check to see if I have
20 the number. I have only my only abstract of the
21 papers, I don't have the complete paper.

22 MADAM CHAIR: Which exhibit is this, Mr.
23 Hanna?

24 MR. HANNA: I don't think it has been
25 entered as an exhibit; has it Mr. Cassidy?

1 MR. CASSIDY: No.

2 MR. HANNA: Mr. Lindgren asked for it and
3 I believe there was an exchange of paper, Madam Chair,
4 and I unfortunately --

5 MR. CASSIDY: Well, I don't have it now
6 and it's going to be highly unlikely I'll be able to
7 get it over lunch hour.

8 I will undertake to look for it
9 overnight. I wasn't aware that he was going to
10 cross-examine on this, I would have otherwise brought
11 it with me, but I'll take a look at it overnight, but
12 that's the best I can do, if he doesn't have it.

13 MR. HANNA: That's fine, Madam Chair.
14 Just so it's somewhere on the record, I'm happy to have
15 it.

16 Q. Dr. Eedy, we can deal with that
17 later. Can we turn to page 7, please, Section 1.3, and
18 you indicate there at the bottom of the page, the last
19 paragraph, that:

20 "Habitat is a much more important measure
21 than population to individual species
22 measured at a single point in time."

23 And you've spoken fairly extensively on
24 this in your evidence and I don't want to duplicate
25 that.

1 Now, I understand what you're saying is
2 that in order to audit and monitor the performance of
3 the timber management plan it is preferred to monitor
4 habitat status at any point of time rather than simply
5 populations of individual species; is that the essence?

6 DR. EEDY: A. That's correct.

7 Q. You're not suggesting that key
8 wildlife populations should not also be monitored; are
9 you?

10 A. I'm not suggesting that, no.

11 Q. Do you feel they should be monitored?

12 A. Well, I feel to a certain extent. I
13 guess the more information one has the better these
14 analytical techniques work, and if one's referring to
15 the habitat supply analysis, basically one has to
16 continue to calibrate them and improve this as one
17 goes, and population information can certainly help in
18 that calibration.

19 Q. Okay.

20 A. I think at one point in time that the
21 habitat analysis per se is a much better indicator; the
22 population one has to look at over a fairly lengthy
23 period of time and in different seasons and this sort
24 of thing in order to really get a handle on it.

25 Q. Habitat is more stable than the

1 population?

2 A. Habitat is more stable than the
3 population.

4 Q. Now, I'd like to just discuss with
5 you the featured species approach for just a minute. I
6 want to make sure that we are of the same mind on this,
7 and I want to understand how you see this being or
8 operating from a wildlife point of view.

9 Do you agree that in order to apply the
10 featured species approach one must decide on a
11 population objective for each species at a forest
12 management unit level?

13 A. A relative objective, again, not an
14 absolute number.

15 Q. Well, wasn't the objective of the
16 featured species approach a way to try and deal with
17 the multiplicity of species that we have and to be able
18 to deal with that we have to say how many of those we
19 want?

20 A. Again, as a relative number or as a
21 range. I'm not saying that one would say you know, we
22 want 237 moose in this unit.

23 Q. Why wouldn't we?

24 A. Well, that could be used as, I guess,
25 an indicator of a range of animals, but I don't think

1 that kind of number is -- you know, I don't like to
2 deal in absolute numbers.

3 Q. Would you like 223 plus or minus 25;
4 would that make you more comfortable?

5 A. It certainly helps. That's what I
6 mean by a range, yes.

7 Q. So that it has to be quantified, but
8 we have to recognize that we aren't precise?

9 A. As far as, you know, if one were
10 using the modeling or something one would use the mean
11 number--

12 Q. Okay. So coming back to that then --

13 A. --as the objective.

14 Q. --to apply the featured species,
15 we've gopt to decide on this population level we want--

16 A. Yeah.

17 Q. --with the plus or minus range around
18 it; that's the first step that we have to deal with?

19 A. Yes.

20 Q. And associated then with that
21 population objective, we then say: This is the habitat
22 needed to support that population?

23 A. Yes.

24 Q. That is the procedure?

25 A. Yes.

1 Q. And that definition has to be in time
2 and space as we've already talked about.

3 A. Yes.

4 Q. Time and space with respect to a
5 forest management unit?

6 A. Yes.

7 Q. Now, in order to define the supply of
8 habitat required we have to have quantitative
9 relationships between the key habitat features and the
10 population; do you agree with that?

11 A. That certainly is beneficial.

12 Q. Beneficial or essential?

13 A. To a certain extent it's necessary,
14 you know, again, as to exactly how much you have to
15 know about I think is a little more indefinite.

16 Q. Back to your point that we have
17 always got limited knowledge and we're never going to
18 know everything, but as much as we know we should--

19 A. We should apply.

20 Q. We should apply, and we should be
21 explicit about it?

22 A. Yes.

23 Q. Now, is this set of procedures, those
24 steps, are they not essential whether one's using a
25 guideline or a habitat supply analysis approach?

1 A. I think the guidelines would
2 essentially be derived from a similar thought process.

3 Q. The difference is one is a thought
4 process, the other is an explicit statement of the
5 relationships?

6 A. Yeah. I think they both sort of come
7 from the same information.

8 Q. Definitely the same information, but
9 it's how you use that information; one's a thought
10 process, one is a formal evaluation process?

11 A. I guess one is -- one is the thought
12 process expressed in mathematics, I guess.

13 Q. Okay.

14 MADAM CHAIR: Mr. Hanna, it's lunch time.

15 MR. HANNA: And I'm just to the end of
16 this section, Madam Chair.

17 MR. MARTEL: How are we making out?

18 MR. HANNA: I'm sorry.

19 MR. MARTEL: How are we making out?

20 MR. HANNA: I can anticipate always your
21 questions, Mr. Martel. I am certainly going to be the
22 remainder of today.

23 MADAM CHAIR: Will you be finished today,
24 Mr. Hanna?

25 MR. HANNA: I'll do my very best, Madam

1 Chair. As you know, I don't have total control over
2 the situation. I have been somewhat abrupt with Dr.
3 Eedy and I apologize for that, but I've been trying to
4 follow a fairly tight time line here and that's the
5 reason why I've been that way.

6 But I will do my best to finish today,
7 but I can't guarantee it.

8 MR. CASSIDY: On that Smith study, I'm
9 just going to propose to send you a copy of that.

10 MR. HANNA: That's fine, Mr. Cassidy.

11 MR. CASSIDY: If I can locate one in the
12 mess in my office. Madam Chair, if Mr. Eedy can
13 confirm that he doesn't have it today when I come back
14 from lunch, so I don't end up running around trying to
15 find something I don't have.

16 MR. HANNA: Madam Chair, I'm afraid I
17 have to retract on that. I would like on the record a
18 statement, either a written undertaking from Dr. Eedy
19 or just a statement saying: This is the size of large
20 clearcut that Dr. Smith used in his study.

21 MR. CASSIDY: Well, that would be
22 presumably indicated in the study which I'll see what I
23 can do.

24 MR. HANNA: Yes, but I want it on the
25 record. If we enter it as an exhibit, I don't mind,

1 but I want it some way on the record.

2 MADAM CHAIR: Do you have this study, Dr.

3 Eedy?

4 DR. EEDY: I don't have the study per se,
5 I may -- I have abstracts of all these things.

6 MADAM CHAIR: Well, there's no point in
7 Mr. Cassidy looking this up until you --

8 DR. EEDY: I will check and see if I have
9 that number and if I don't --

10 MR. CASSIDY: If Mr. Hanna doesn't mind,
11 he can advise me at the end of the lunch break and I'll
12 then go from there.

13 Thank you.

14 MADAM CHAIR: Mr. Freidin?

15 MR. FREIDIN: I'm just wondering, in very
16 short order, Madam Chair, you can indicate whether you
17 plan to start Panel 10 or have Panel 10 start tomorrow
18 if we finish in the afternoon, or whether we are going
19 to wait until Thursday. Just, I want to deal with my
20 support --

21 MADAM CHAIR: Why don't you tell us how
22 long you're going to be in cross-examination?

23 MR. FREIDIN: I think I'll be about two
24 hours.

25 MADAM CHAIR: Two hours. Ms. Seaborn?

1 MS. SEABORN: My estimate was an hour,
2 Madam Chair.

3 MR. FREIDIN: And I think NAN indicated
4 two hours.

5 MR. CASSIDY: My re-examination will be
6 an hour or less.

7 MADAM CHAIR: Well, we won't be getting
8 to Panel 10 tomorrow. Start Thursday morning with
9 Panel 10.
10 ---Luncheon recess taken at 12:05 p.m.
11 ---On resuming at 1:35 p.m.

12 MADAM CHAIR: Please be seated.

13 Mr. Hanna, on Mondays I think the
14 schedule says at this point that we're going to start
15 at 9:00 a.m. We are going to sit 10:00 to 5:00 on
16 Monday to accommodate the out-of-town people who will
17 be able to come in that morning, rather than the night
18 before.

19 Thank you.

20 MR. HANNA: Q. Dr. Eedy, I would like
21 now to discuss this matter of featured species, this is
22 Section 1.3 of your witness statement. You make
23 reference in the first paragraph in that section to the
24 fact that approximately 70 - I think you've modified
25 that, maybe 70, 80 per cent, whatever the exact number

1 is - of the wildlife species are being managed
2 adequately by the two provincial featured species
3 proposed by the Ministry of Natural Resources; is that
4 correct?

5 A. Yeah, my understanding of featured
6 species approach is that --

7 Q. Dr. Eedy, can I just stop right there
8 for just a second. I had a very simple question and my
9 question was: Is that correct? I'll give you lots of
10 time to expand on that, but I just want -- I don't mean
11 to be rude here, whatever, but I'd like to try and keep
12 this as narrow as possible. I will give you lots of
13 chance to expand on it, but let's just get the points
14 and then we'll move from there.

15 MR. CASSIDY: At the same time I
16 appreciate his concern, the witness does have the right
17 to give the answer he thinks appropriate to the
18 question, and I think Dr. Eedy has been trying that
19 this morning.

20 I'm not interfering in this
21 cross-examination, but Mr. Hanna should bear that in
22 mind and I'm sure Dr. Eedy will bear in mind the fact
23 that Mr. Hanna is under a time constraint.

24 MR. HANNA: Q. But that is what you said
25 there. All I was just trying to define, Dr. Eedy, was

1 the statement -- to confirm that that is the statement
2 and that you're agreeing that 70 to 80 per cent of the
3 wildlife species would be adequately dealt with by the
4 two provincial species?

5 DR. EEDY: A. By the featured species
6 approach which I understand to mean two species plus
7 threatened and endangered species and others as locally
8 determined. That's all I wanted to qualify.

9 Q. Fine.

10 A. Not just two species.

11 Q. Now, you're aware that the Ontario
12 Federation of Anglers & Hunters have proposed to
13 include pine marten in addition to moose as featured
14 species in the boreal forest portion of the
15 undertaking?

16 A. Yes.

17 Q. And if you want to make reference to
18 that it's our term and condition 108 on page 20. Would
19 you agree that by adding pine marten as a featured
20 species approach that a large portion of the 20 or 30
21 per cent of the wildlife species in the boreal forest
22 not protected by the wildlife habitat guidelines would
23 be accommodated?

24 A. That would accommodate those species
25 which prefer mature forest habitat, yes.

1 Q. And that's a large portion of that 20
2 to 30 per cent?

3 A. Yes.

4 Q. As a wildlife ecologist do you see
5 benefit in adding pine marten as an additional featured
6 specie for the boreal forest portion of the area of the
7 undertaking?

8 A. Yes.

9 Q. Would you recommend to the Board that
10 they include pine marten as an additional featured
11 specie to deal with those species requiring more
12 extensive mature stands in the boreal forest?

13 A. I think that to deal with mature
14 forest species it is a good concept to have a mature
15 forest featured specie. I'm not -- anyway, yes. I'm
16 not certain that pine marten has to be the absolutely
17 best, but it may be.

18 Q. We certainly have a good
19 understanding of its habitat requirements?

20 A. Yes.

21 Q. We have a good understanding of its
22 population dynamics?

23 A. Yes.

24 Q. Those would be important criteria in
25 defining--

1 A. Yes.

2 Q. --a featured species?

3 A. Yes.

4 Q. And it is socially, important both
5 for consumptive and non-consumptive uses?

6 MR. CASSIDY: Well, that's an area he's
7 not qualified. We already had difficulty with a
8 biologist either asking questions or trying to answer
9 questions that are really social issues. He's not
10 qualified as a social scientist, and you're
11 going to hear more from me on that later in respect of
12 other biologists. But this witness is not a social
13 scientist and should be asked to answer fields outside
14 his expertise. That's called wasting time in this
15 hearing, in my submission.

16 MADAM CHAIR: I think Dr. Eedy has
17 indicated, Mr. Hanna, that he won't make comments about
18 the social value of --

19 MR. HANNA: There's only one point that I
20 would take objection to in Mr. Cassidy's objection, and
21 that is that biologists can't ask those questions. I
22 accept that he can't answer them, but I hope that
23 biologists can ask those questions in the appropriate
24 forum.

25 MR. CASSIDY: Well, this may not be the

1 appropriate forum for a biologist to do that.

2 MR. HANNA: Q. Would you agree, Dr.
3 Eedy, that it is practical at this time given our
4 understanding of the habitat requirements of marten to
5 specify a habitat supply model for them?

6 DR. EEDY: A. To specify that this be
7 used or that --

8 Q. I'll read it again. Would you agree
9 that it's practical at this time to specify the habitat
10 supply requirements for marten given our current
11 understanding of their requirements?

12 A. I believe there is a habitat supply
13 model for marten.

14 Q. So that is a yes?

15 A. Yes.

16 MR. FREIDIN: I'm sorry, what was the
17 answer?

18 MR. HANNA: Yes.

19 DR. EEDY: I wasn't -- when he said
20 specify, I know there is a model for marten. I wasn't
21 sure whether that was the question.

22 MR. HANNA: Q. Well, I'm asking you if
23 you feel we've got sufficient understanding of them.
24 There are all sorts of models out there, some people
25 may not support them or not; do you feel that there's

1 sufficient knowledge--

2 DR. EEDY: A. I would think so.

3 Q. --to use that in a practical way in
4 management sense?

5 A. Yes.

6 Q. The OFAH has also proposed that the
7 pileated woodpecker be added as a featured species in
8 the Great Lakes/St. Lawrence Forest portion of the area
9 of the undertaking.

10 Would you agree that the addition of this
11 species would assist in protecting those wildlife
12 species dependent on more mature forest stands and
13 cavity nesting sites that may not be protected with the
14 deer as a featured species?

15 A. That particular species would
16 represent those types of species, yes.

17 Q. And would you recommend that the
18 Board add the pileated woodpecker as a featured species
19 for this forest area?

20 A. If -- yes, assuming that that's the
21 policy, is to extend that protection, it would
22 certainly be the species to have.

23 Q. And as a wildlife biologist you can
24 see merit in that?

25 A. As a wildlife biologist, certainly.

1 Q. I'd like to now turn to page 8 which
2 you discuss habitat supply models, actually you've got
3 a number of terms here. You've got habitat suitability
4 analysis and you've got Ontario land inventory and
5 Canada land inventory. Unfortunately the habitat
6 suitability analysis has the same acronym as habitat
7 supply analysis.

8 A. Yeah. Well, in that case I was
9 confused between the habitat suitability index, that's
10 the word they use in the States, and the habitat supply
11 analysis which Baskerville has used, I believe it means
12 the same thing.

13 Q. Well, we're going to go through each
14 of those three. I just want to make sure that you
15 understand, I think there's three things on the table,
16 there is habitat supply analysis at Baskerville, then
17 we have habitat suitability analysis, which is
18 comparable to some of the things that are being done by
19 the U.S. Forest Service at the present time, and then
20 you also have here the Ontario and Canada land
21 inventory, is the third set of those. I want to deal
22 with each of those individually.

23 A. I guess as part of the HSI there is
24 the habitat evaluation procedure too which brings it
25 closer to the habitat supply analysis.

1 Q. Right. Yes, it's much closer to the
2 HS - can't use HSA - a more habitat supply analysis
3 type of approach, but you haven't dealt with the
4 habitat evaluation procedure here; have you?

5 A. No, I really have rolled that
6 together within the HSI where I refer to HSI and...

7 Q. Okay. Now, dealing first with the -
8 I'll use the acronym OLI to stand for Ontario land
9 inventory - dealing first with the OLI approach, you
10 indicate that both the OLI and CLI have used similar
11 methods to map the wildlife productive capability of
12 habitat areas across most of Ontario.

13 Now, this was not my understanding of how
14 these systems were structured, and I want to make sure
15 I understand this. Were not the OLI and CLI procedures
16 based primarily on soils and topography of the land
17 base, and were not the wildlife habitat -- or wildlife
18 capability assessments independent of the serial state
19 of the forest vegetation or the current population
20 status?

21 A. Yes. The theory in the OLI or CLI
22 approach is that if one has a certain type of soil and
23 climate and topography that all factors taken into
24 consideration, that it is most likely to produce a
25 certain type of forest or habitat which would then

1 support a certain type of wildlife; whereas the habitat
2 supply analysis is more looking at what is actually
3 there, not what the potential of the land is there to
4 produce.

5 Q. And it also looks at managing the
6 forest as opposed to simply the intrinsic--

7 A. Yeah.

8 Q. --edaphic characteristics of the
9 site?

10 A. That's right.

11 Q. And you would agree that forest
12 wildlife productivity is highly dependent on the forest
13 structure; correct?

14 A. Yes.

15 Q. Did the OLI and CLI methodologies use
16 predictive cause/effect relationships between species
17 and their habitat?

18 A. They use those, yes.

19 Q. You're familiar with explicit
20 predictive techniques used in that methodology?

21 A. Well, they're predicting those sort
22 of one step further, in that they are predicting what
23 the habitat would be, but the methodologies look at
24 what the habitat requirements are of the different
25 species.

1 Q. So the similarity between the OLI and
2 CLI approaches and the habitat supply analysis approach
3 is that both are based upon a comprehensive landscape
4 evaluation, but the similarity starts to diverge
5 rapidly beyond there?

6 A. Well, both are based on evaluations
7 of what the species require as a habitat; the one looks
8 at what exists in the forest now; whereas the other
9 says that, given this climate and this type of soil,
10 this kind of forest could exist there, whether it does
11 or not is not necessarily...

12 Q. Okay. Let's move then to the habitat
13 supply or habitat suitability, you've called it habitat
14 suitability analysis. There is a habitat suitability
15 index also, HSI.

16 A. That's a slip from the word, mixing
17 the too. It should be habitat supply analysis or
18 habitat suitability index.

19 Q. Right. Let's deal with habitat
20 suitability index, because it gives us the acronym HSI
21 which I will use.

22 A. Okay.

23 Q. Now, you indicate that the HSA
24 approach is basically identical to the HSI approach and
25 I now understand in making that statement you're

1 rolling into the HSI approach also the next step which
2 is the habitat evaluation procedure?

3 A. That's correct.

4 MR. CASSIDY: HEP.

5 DR. EEDY: HEP.

6 MR. HANNA: That hearing's next week.

7 DR. EEDY: It's done by the same people
8 and at the same place sort of thing.

9 MR. HANNA: Q. Yes. So as I understand
10 you then, what you're saying, that the conceptual basis
11 between habitat and wildlife populations are similar in
12 the HSI approach and the HSA approach?

13 DR. EEDY: A. That's correct.

14 Q. And a fundamental difference between
15 the HSI - and I'm now taking HSI in its exclusive, in
16 its narrow definition which is simply the index, okay,
17 as opposed to not lumping in the habitat evaluation
18 component - is a fundamental difference between the HSI
19 and the HSA approach that the HSA approach involves
20 predictive evaluation of habitat supply, the habitat
21 yield curve type of thing that Dr. Baskerville spoke
22 about, comparable to prediction of wood supply?

23 A. Yes. The index -- or the
24 HSI I know in the documents does refer to an index
25 which could be taken to infer a certain population

1 level, so there's not that distinct a difference
2 really.

3 Q. But the HSI is just simply, this is
4 the habitat relationship?

5 A. Yeah.

6 Q. It doesn't take that next step and
7 say, predict it over time and space in a yield curve
8 type of context?

9 A. Mm-hmm.

10 Q. So that the same species habitat
11 relationships that have been developed in the U.S.
12 under the HSI banner would be equally applicable under
13 the HSA type of approach that's being discussed here?

14 A. Yes. I guess the difference being
15 the dynamics of one as compared to the sort of static
16 nature of the other but that's --

17 Q. The other being HSI?

18 A. HSI.

19 MR. MARTEL: What hinges on it all, Mr.
20 Hanna?

21 MR. FREIDIN: I'm sorry?

22 MR. MARTEL: What hinges on all of this,
23 the comparisons and whatnot?

24 MR. HANNA: I want to make very clear,
25 Mr. Martel, that the Board clearly understands the

1 difference in terms of methodologically how they're
2 applied. We have, for example, in the province at the
3 present time Ontario land inventory maps that, as the
4 witness has indicated, cover large areas of Ontario.
5 Unfortunately, they do not serve the same role.

6 And I think -- I would submit to the
7 Board that their utility in the type of application
8 that we're considering for HSA is very limited, and I
9 want to be assured that at some point down the roadway
10 I don't turn around and are faced with someone saying:
11 Oh, we've already got OLI, what are you worried about,
12 Mr. Hanna, we've got wildlife potential for the
13 province.

14 And I want to make sure that it's clear
15 on the record that they are not the same and that there
16 are substantial differences and that there are
17 limitations of those techniques for timber management
18 planning.

19 MR. CASSIDY: If I may call it speech,
20 and I wouldn't mean that in a derogatory term at all, I
21 would suggest that is where evidence would be required
22 from Mr. Hanna's client.

23 I as a lawyer cannot accept that coming
24 from an agent. You would have to call evidence to
25 suggest that point, and I'm just bringing that to the

1 Board's attention, that I assume Mr. Hanna's intention
2 is to produce evidence to substantiate what he just
3 said.

4 MR. HANNA: I have every reason to call
5 that evidence.

6 MR. CASSIDY: Okay.

7 MR. HANNA: And I would say I've already
8 obtained much of that evidence from Dr. Eedy.

9 Q. Perhaps I'd turn to Dr. Eedy and say: "
10 Dr. Eedy, do you disagree with what I just said to Mr.
11 Martel as a wildlife biologist?

12 DR. EEDY: A. If I can put it in my own
13 terms, I think what you're saying is that the OLI is
14 basically a prediction of what could be in an area
15 given the proper circumstances; whereas the HSA
16 approach is a management tool because it looks at what
17 either is or what's planned in the form of timber
18 harvesting and predicts what the values of that result
19 is.

20 Q. OLI system could not be used in that
21 format?

22 A. No, the OLI doesn't change whether
23 you cut the forest or not.

24 Q. Dr. Eedy, looking now at the moose
25 habitat guidelines, do they lead to predictions of

1 moose population numbers based upon alternative
2 prescriptions as specified in the guidelines?

3 A. They are more indicative of what
4 ideals would be in moose habitat than predicting the
5 different factors in the forest, you know, effects on
6 the forest would result in populations.

7 Q. Do they lead to predictions of moose
8 population numbers based upon the alternate
9 prescriptions prescribed or contained in the
10 guidelines.

11 A. I don't think they lead to exact
12 predictions of numbers, they would certainly give one
13 good evidence for looking at what the effects of what
14 is done in the forest could be on ideal moose habitat.

15 Q. Since the application of the
16 guidelines requires - if you don't agree with this
17 suggestion I invite you to disagree - since the
18 application of the guidelines require an implicit
19 habitat supply analysis, would you not agree that it's
20 just as feasible scientifically to implement the HSA
21 approach today as the guideline approach since they
22 both involve the same underlying procedures?

23 A. I wouldn't disagree with that.

24 Q. Is not a fundamental component of
25 environmental assessment, the need to make quantitative

1 predictions upon which to evaluate the advantages and
2 disadvantages?

3 A. Yes.

4 MR. CASSIDY: Well...

5 MR. HANNA: Q. Does it not follow that
6 the HSA approach is consistent with the analytical
7 concept since it involves quantitative predictions of
8 environmental responses, in this case wildlife; it's a
9 way to do impact prediction?

10 A. Yes, it would work in the way of --
11 that's one of the things, that is certainly one of the
12 goals. In putting together these models was to be able
13 to do predictions of future scenarios.

14 Q. Now, looking at page 9 of your
15 witness statement, the last sentence there in the first
16 full paragraph just before Section 1.4 you say:

17 "This approach...", and I believe you're
18 referring to HSA:

19 "...is broader than the featured species
20 approach."

21 Now, when I read that I got the sense
22 that you felt that there was a choice between HSA and
23 featured species. Are they not mutually compatible?

24 A. Yes, they are and I think we went
25 into this and I guess it was in some of the previous

1 cross-examination and also in my original summary of my
2 testimony, in that I really see them being compatible
3 or not mutually exclusive; one is a tool that can be
4 used to apply the other.

5 Q. The habitat supply analysis approach
6 could be used if there was one featured species or 10
7 featured species; correct?

8 A. That's correct.

9 Q. Dr. Eedy, I would like now to turn to
10 a paper by one of your colleagues which I provided to
11 you the last time we were here. It's by J. L. Kansas
12 and R.M. Raine entitled: Habitat Modeling in the
13 Wildlife Sector.

14 MR. HANNA: Madam Chair, I'd like to
15 enter that as an exhibit now, if I may.

16 MADAM CHAIR: That will be Exhibit 1258.

17 MR. HANNA: (handed)

18 MADAM CHAIR: Thank you, Mr. Hanna.

19 ---EXHIBIT NO. 1258: Excerpt from Forestry Canada
20 Forest Modeling Symposium
21 proceedings, held March 13-15,
22 1989, entitled: Habitat Modeling
in the Wildlife Sector authored
by Kansas and Raine.

23 MR. HANNA: Q. This paper was
24 prepared by some of your colleagues at Beak; is that
25 correct?

1 DR. EEDY: A. That's correct.

2 Q. And the overall thrust of the paper
3 is to review alternate ways to develop habitat
4 prescriptions and to examine the advantages and
5 disadvantages of using habitat models in timber
6 management planning; is that correct?

7 A. Yeah. I think it's more related --
8 yeah, okay, the majority of it is habitat modeling and
9 there is a final -- about a page on its application in
10 forestry.

11 MR. FREIDIN: Madam Chair, I'm just
12 wondering for the purpose of the record, so we'll have
13 a record of where these come from -- a more complete
14 record, whether it could be identified at this time the
15 document from which this is an excerpt.

16 MR. HANNA: I apologize, Mr. Freidin. I
17 had that information, I meant to provide it to the
18 Board.

19 Madam Chair, it's from a symposium
20 entitled: The Forest Modeling Symposium. The editors
21 of the symposium proceedings are B. J. Boughton,
22 B-o-u-g-h-t-o-n, and J. K. Samoil, S-a-m-o-i-l. It's a
23 Forestry Canada information report number NOR X 3308.
24 The proceedings -- the symposium occurred in March 13th
25 to 15th of 1989, and the symposiums were published in

1 1990.

2 MR. FREIDIN: Thank you.

3 MR. HANNA: Q. Now, I'd like to look at
4 some of the statements in here and get your views on
5 it, Dr. Eedy.

6 I would like to first deal on page --
7 I'll use the page numbers that are on the exhibit, 128,
8 which is the first page, and I'm looking at the
9 right-hand column, the first full paragraph.

10 "As a wildlife biologist who deals
11 regularly with insufficient budgets my
12 definition of a model differ somewhat
13 from the above. A means of trying to
14 indirectly represent real world
15 conditions stemming from a realization
16 that sampling budgets never seem large
17 enough to tell the real story."

18 He goes on:

19 "This tongue and cheek definition has
20 some factual basis as is generally
21 accepted that the complexities of
22 wildlife interactions with their habitat
23 will never be precisely mirrored", and he
24 provides certain citations there:

25 "Artificial models can, however, provide

1 most managers with information of
2 sufficient accuracy to meet their
3 particular needs."

4 And I take it this conclusion is
5 consistent with the evidence that you've provided here,
6 that you're of the view that we have sufficient
7 knowledge at this time with respect to wildlife habitat
8 needs to make reasonably informed management decisions;
9 is that correct?

10 DR. EEDY: A. That's correct.

11 Q. And would you agree that artificial
12 models like habitat supply models can provide most
13 managers with information of sufficient accuracy to
14 meet their particular needs?

15 A. That's correct.

16 Q. And would you agree that the
17 author -- would you agree with this author that the
18 habitat models -- that habitat models are currently
19 receiving wide-spread use as an objective and
20 quantifiable tool for wildlife resource values for
21 integrated land planning and management?

22 A. Yes.

23 Q. Has it been your experience in
24 Ontario that these types of models are being used
25 extensively in timber management planning at the

1 present time?

2 A. I don't believe they're used
3 extensively. I believe that there is a lot of work
4 being done to ensure that they are calibrated and
5 incorporated into the use and I believe that one of the
6 Ministry --

7 Q. You're looking at Exhibit 923?

8 A. I think that's the one. I don't
9 think I have it right here, but they have made
10 commitment in that exhibit to developing and utilizing
11 these models I believe.

12 Q. Have they, or have that made the
13 commitment to evaluate their potential use?

14 A. I guess that's specifically the
15 words. I don't have that.

16 Q. But they are being used in many other
17 jurisdictions, based upon your knowledge?

18 A. They are being used--

19 Q. Operationally.

20 A. --elsewhere, yes.

21 Q. Now, if we could turn to page 129,
22 under Habitat Status Assessment, the author describes
23 three types of habitat assessments. The first is
24 current habitat suitability, the second is inherent
25 habitat capability, and the third is potential habitat

1 capability.

2 Would you agree that these three generic
3 types are all forms of HSI rather than HSA type models?

4 A. I would have thought that the first
5 was HSI, as we are defining it, and the third was more
6 of an HSA where you're predicting dynamic changes;
7 whereas the second is, as he says, the CLI or OLI
8 approach.

9 Q. Okay. And in order to implement that
10 third type, the potential habitat capability, one would
11 need to add a direct connection to predict wildlife
12 populations current and future so you'd have to have
13 that habitat capability and the corresponding
14 population; correct?

15 A. One -- well, to apply either one or
16 two, one would need the relationship between the
17 habitat and the population; to apply the third one
18 would need some kind of a forestry or habitat
19 predictive model for a site or something like this that
20 predicts the forest regeneration and growth at
21 maturity.

22 Q. Can we move to the heading at the
23 bottom of that page entitled Subjective Manual
24 Assessment.

25 A. Yes.

1 Q. Would you agree that the type of
2 analysis he describes under this heading would best --
3 would be the one that best describes the guideline
4 approach currently used in Ontario?

5 A. That's my feeling.

6 Q. Turning to the next page at the top
7 of the left-hand column, the middle of that paragraph.

8 A. This is the next --

9 MR. CASSIDY: Page 132, Mr. Hanna?

10 MR. HANNA: I'm sorry, I've got 130 as my
11 next page.

12 MR. CASSIDY: That's the graph; isn't it?

13 DR. EEDY: No. 130 is the one we were on.
14 I turned the page when we were reading that paragraph.

15 MR. CASSIDY: We're on page 130?

16 MR. HANNA: We're on page 130.

17 Q. The top of page 130, the first
18 paragraph there in the middle, the author says:

19 "The success of this type of assessment",
20 and he's referring to the subjective manual assessment
21 I believe:

22 "...hinges on three factors: (1) the
23 type and level of detail of biophysical
24 information presented for land units; (2)
25 the amount of local or regional wildlife

1 field experience of the expert biologist;
2 and, (3) the amount of existing habitat
3 use, research and inventory information
4 present for the survey area or
5 representative ecoregion."

6 Would you agree with this statement?

7 DR. EEDY: A. Yes, I think that's
8 correct.

9- Q. Would you agree that because the
10 subjective assessment methodology is highly dependent
11 on the individual involved as opposed to relational
12 databases such as are used in habitat supply models,
13 that there's a greater potential for variability in
14 terms of the reliability of habitat demand and supply
15 forecasts?

16 A. I'm not certain because I think one
17 of the problems - and I don't think it's an
18 insurmountable problem - but one of the problems with
19 modeling right now is that it in many cases still needs
20 to be calibrated, needs to be tested out, and I
21 think -- my understanding of a lot of the models
22 nowadays is that they are formed largely based on this
23 subjective knowledge and evaluation.

24 Q. No question.

25 A. Basically, for instance, the moose

1 model for Lake Superior was formed by a committee of
2 experts getting together and sharing their pool of
3 knowledge rather than by -- and really what needs to be
4 done now is it needs to be tested in the field to
5 calibrate it.

6 Q. But, Dr. Eedy, isn't what you're
7 saying that no matter whether you're using subjective
8 manual assessments or you're using formal relational
9 databases, based upon perhaps that same expertise,
10 you've still got that uncertainty, you still have to
11 verify it? You have to verify manual assessment just
12 as well as you've got to verify the model?

13 A. And I think the model gives you a
14 tool that's easier to apply the verification with.

15 Q. So you can't escape verification
16 regardless of the tool you use?

17 A. Yes.

18 Q. And we haven't verified any more the
19 manual assessments than we have the formal models?

20 A. We're basically using the same
21 information for both, I think.

22 Q. And the advantage of the relational
23 type database approach is that it can be passed on as
24 opposed to going with whoever it is who has that
25 information in their head?

1 A. Yes.

2 Q. Now, can we look at the next section
3 there that deals with modelled assessments and the
4 statement there which is the third sentence in the
5 first paragraph, it says:

6 "The main strength of modeled habitat
7 evaluations is that they are documented,
8 repeatable and quantifiable. The
9 important advantage of models is that
10 they make intuitive or invisible
11 assumptions of the wildlife expert more
12 visible and tangible."

13 Do you agree?

14 A. Right, that's correct.

15 Q. The next sentence continues on and
16 says:

17 "Subjective evaluations have the
18 limitation of not being repeatable, of
19 incorporating selective individual
20 biases, and not being available for
21 scrutiny by others."

22 Do you agree with that?

23 A. I think that's correct in some
24 circumstances. I think a lot of the subjective
25 evaluations do get incorporated into things like

1 planning documents and into information bases at least.

2 Q. Or hearings.

3 A. Or hearings, correct.

4 Q. The final sentence there the author
5 indicates:

6 "The model development by its interactive
7 nature forces the biologist to refine and
8 test aspects of wildlife interaction with
9 habitat that are required to make an
10 accurate assessment of habitat
11 suitability or capability."

12 Do you agree that this is, in part, an
13 articulation of the same philosophy as the adaptive
14 management concept?

15 A. I agree it is, it's really scientific
16 methodology.

17 Q. And you support that concept?

18 A. Yes.

19 Q. The fact that models provide
20 repeatable and quantifiable analyses that are visible
21 and tangible to others, such as members of the public,
22 is important in environmental assessment; would you not
23 agree?

24 MR. CASSIDY: Again, this expert is an
25 expert in biology and biological impact assessment.

1 I'm not sure he's an expert in environmental
2 assessment.

3 I don't know too many people who would
4 claim that title, other than members of the Board
5 perhaps of Ontario and, therefore, I don't think it's
6 fair their witness to be telling you what your area of
7 expertise is. I think it's proper for him to tell you
8 what his area of expertise is.

9 MR. HANNA: Madam Chair, I disagree
10 wholeheartedly, and with full respect to the Board -
11 and I'm not suggesting in any way they aren't experts
12 in environmental assessment - but I think the Board's
13 in a very difficult situation if that's the only source
14 of environmental knowledge that we have in this
15 province.

16 This witness has appeared before the
17 environmental -- sorry, certainly appeared before other
18 hearings boards before, he's prepared environmental
19 impact statements, he's been in this business for over
20 15 years, he's dealt both as a wildlife biologist and
21 as one who deals with public consultation and regularly
22 deals with the public on these sort of matters. If he
23 isn't able to answer this question, Madam Chair, I
24 don't know who in this world we're going to be able to
25 have to ask questions on environmental assessment to.

1 MADAM CHAIR: Mr. Hanna, I thought your
2 question was a simple one; and, that is, that you
3 should speak in language that the public can understand
4 when you're doing any sort of analysis.

5 Is that your question?

6 MR. HANNA: No, Madam Chair. I don't
7 disagree with that, I'm fully --

8 MADAM CHAIR: What is your question?

9 MR. CASSIDY: I wouldn't have any
10 objection to a question like that.

11 MR. HANNA: The question was that - I'll
12 read it again - since models provide repeatable and
13 quantifiable analyses that are visible and tangible to
14 others - and I'm paraphrasing directly out of this
15 paper and the witness has agreed to that - such as
16 members of the public -- I better start again. I can't
17 read my own question.

18 The fact that models provide repeatable
19 and quantifiable analyses that are visible and tangible
20 to others, such as members of the public, is important
21 in environmental assessment.

22 That's the sum total of it, is it
23 important to be traceable in your environmental
24 assessment, how you come to your conclusions in terms
25 of impacts? That's my question to you.

1 MR. CASSIDY: And that is -- the essence
2 of my objection is the very last part. If you want to
3 ask him a motherhood question about whether it's
4 helpful to the public, he can speak as a member of the
5 public I suppose even though he's not being called as
6 an expert in what the public thinks is important, and I
7 have difficulty with anyone doing that in any event.

8 But it's the last part and putting in
9 environmental assessment, that's a matter for argument
10 between us and trying to convince you on behalf of our
11 respective parties.

12 MADAM CHAIR: I don't think this point
13 should hang us up, Mr. Hanna. I think if you put your
14 question with respect to Dr. Eedy's expertise as a
15 wildlife biologist and the role that he plays in any
16 sort of environmental analysis or generally, then I
17 think he can answer that.

18 MR. HANNA: Well, let me try it again
19 then, Madam Chair.

20 Q. Are you familiar with the concept of
21 traceability, Dr. Eedy?

22 DR. EEDY: A. Yes.

23 Q. Do models by their nature of being
24 repeatable and quantifiable and that their operation is
25 visible and tangible to others aid greatly in meeting

1 the traceability requirement?

2 A. From a wildlife assessment as opposed
3 to an environmental assessment--

4 Q. Yes.

5 A. --perspective. I guess the only part
6 that I don't --

7 Q. Was that a yes, I just want to make
8 sure. That was yes?

9 A. Yes, with one part that I don't
10 totally agree with and that's, I guess you and I have
11 been involved with models for a great deal of time. I
12 really have a lot of difficulty in finding the public
13 to see this as a tangible method.

14 The public generally sees a model as a
15 black box, something goes in here and something comes
16 out here, and that 20 pages of mathematics inbetween I
17 don't think help the public understand what goes on at
18 all, but as a technique certainly and from a
19 scientist's perspective it's certainly something that
20 is repeatable and testable.

21 Q. And one of the ways that the public
22 can get some assurance is to hire experts such as
23 yourself or to have public interest groups that have
24 informed staff to be able to say: We've looked inside
25 that black box, we understand how it operates, we think

1 it's scientifically valid, and so that the public each
2 time that they're faced with it don't have to go back
3 and unravel it, but can have some confidence of it
4 being done in a responsible systematic way. Would you
5 agree?

6 A. I agree with your principle. Again
7 though, I have been at many meetings where two
8 scientists won't agree as to the mathematics that goes
9 on inside that box, and it can still be quite
10 confusing, but I certainly agree that it's a good
11 technique.

12 Q. But there's nothing wrong with
13 arguing about the mathematics; is there, that's
14 healthy?

15 A. That helps improve it.

16 Q. Yes. But we all know what the
17 mathematics is we're arguing about?

18 A. Yes.

19 Q. And that's the reason traceability is
20 important, whether it's scientifically or in other
21 forms?

22 A. Yes.

23 Q. Now, is there not also an advantage
24 of this approach, in that if the same analytical
25 structure is being used each time the input data may be

1 different but the relations stay constant? Once the
2 model is fully documented, complying with the
3 traceability requirement on an individual case is
4 greatly facilitated since the background documentation
5 of the model lays out the logical basis for the
6 analysis; would you agree?

7 A. Yes.

8 Q. And the only thing you have to
9 rationalize then is those local site-specific
10 modifications that you feel are appropriate?

11 A. Well, I feel that models always have
12 to be adaptive whether it's site-specific or whether
13 it's -- you know, as one gathers more and more data,
14 you improve the model.

15 Q. Yes, but my question was a
16 documentation question.

17 A. Yes.

18 Q. In terms of the volume of information
19 I have to provide, the only volume of information I
20 have to provide is the rationalization for those local
21 modifications; I don't have to worry about all that
22 other stuff?

23 A. You can refer to the other
24 documentation, sure.

25 Q. Right. I'd like to turn to page 132

1 now. There's a statement there made under Documenting
2 the Model, it says:

3 "To fully optimize their benefits, models
4 must be thoroughly documented. This
5 should include identification of
6 assumptions, rationale used, the scope
7 and objectives of the model and the
8 inherent limitations of its applicability
9 and accuracy. Thomas 1986 stated that,
10 "People who produce and use models have
11 the responsibility to explain processes,
12 assumptions, strengths and weaknesses, to
13 those who make decisions based on these
14 models"".

15 I take it you would agree with this
16 statement?

17 A. Yes.

18 Q. Is there not with a subjective manual
19 assessing a similar onus when the assessment technique
20 is used?

21 A. I think there is, yes.

22 Q. And the level of documentation that
23 would be required each time a subjective decision is
24 made would be similar to using that model, particularly
25 if it's a different relational database that each

1 person has in their head?

2 A. Yes.

3 Q. In this respect, subjective
4 assessments are much more demanding than the use of
5 explicit quantitative models; would you agree?

6 A. I'm not certain that I would agree
7 with that.

8 Q. Well, if you accept the statement
9 that we just read there on page 132 that there's a
10 responsibility--

11 A. Yes.

12 Q. --to document your assumptions,
13 relationships, all those good things, and that same
14 responsibility exists if I use a subjective assessment
15 or I use formal model of this nature. Every time I do
16 a subjective assessment I have to, for all intents and
17 purposes, document my model, the model that's up here.
18 (indicating) That's a very onerous task; is it not?

19 A. But it's similar though in that once
20 it's documented, if you -- for instance, if you have a
21 hearing or if you publish a paper or something on your
22 evaluation, it's then documented.

23 Q. And once I have documented, it's for
24 all intents and purposes then a habitat model because
25 I've said, here's the relationships?

1 A. Yes.

2 Q. So there's no difference at that
3 point?

4 A. And it's true, models don't have to
5 be necessarily mathematical.

6 Q. I would like to turn to page 133 and
7 deal with the paragraph under Potential Solutions, and
8 this section is dealing with the need to provide
9 adequate data to operate habitat models; is it not?

10 A. Yes.

11 Q. And the author indicates that there's
12 two primary sources of land information; namely,
13 detailed timber inventories and satellite inventory and
14 you have also suggested these as primary sources of
15 information to evaluate habitat; have you not?

16 A. They're initial sources, yes.

17 Q. And the next sentence the authors
18 indicate that in order to make these information
19 sources useful for wildlife habitat purposes, they must
20 be combined with appropriate field work, and I take it
21 you would agree with that?

22 A. Yeah, there needs to be ground
23 truthing.

24 Q. And field work must be carried out at
25 a site-specific, case by case level?

1 A. Yes.

2 Q. Later in that paragraph they indicate
3 that:

4 "One potential means of providing
5 foresters with the wide-spread source
6 of mapped information with which to model
7 wildlife habitat is to establish a link
8 between understorey conditions and
9 detailed timber inventory polygons."

10 I believe polygons, they're referring to
11 what we call stands. Well, let me continue and you
12 can --

13 A. No, not necessarily.

14 Q. "This would require pilot site
15 classification projects within ecoregions
16 to determine relationships between plant
17 associations and terrain features."

18 A. I think polygons would be referred to
19 as your ecoregion or your ecoregion sites, I guess
20 would be, but not necessarily stands.

21 Q. Okay. So you agree though with the
22 statement that is set out here?

23 A. Yes.

24 Q. Now, if this is essential to
25 integrate timber management prescriptions with

1 wildlife, we therefore need this link; correct, between
2 the, for all intents the overstorey, the merchantable
3 trees and all those other vegetative factors that are
4 important for wildlife?

5 A. That certainly is valuable, yes.

6 Q. It's not only valuable, it's
7 essential; isn't it?

8 A. Well, I guess this again is part of
9 what we've been saying, is that the understorey is
10 quite often the more important factor as far as things
11 like browse or this type of thing.

12 Q. Now, Dr. McCormack when he was here
13 indicated that as a forest ecologist he felt that there
14 was reasonably good understanding of these
15 relationships at the present time such that the links
16 could be established. Do you have any reason to
17 disagree with that?

18 MR. CASSIDY: Do you have a transcript
19 reference for that?

20 MR. HANNA: It was my cross-examination.
21 I don't have it at the moment.

22 MR. FREIDIN: Which relationships are you
23 referring to?

24 MR. HANNA: Relationships between - and I
25 can provide the Board with a specific direction as to

1 what it was - we were talking about making a connection
2 between what was taking place in terms of merchantable
3 trees and the associated plant species, and Dr.
4 McCormack indicated that as a forest ecologist he would
5 be able to make that connection between the management
6 of a stand and the plant succession.

7 DR. EEDY: I have no reason to disagree.
8 I'm not a plant ecologist or forest ecologist.

9 MR. HANNA: Q. But you're aware that
10 those types of relationships have been developed in
11 many cases?

12 DR. EEDY: A. I'm aware that they have
13 been developed, but I'm also aware that the strict
14 forest resource inventory usually requires some ground
15 truthing to get a better handle on the understorey.

16 Q. So it needs to be supplemented?

17 A. Yes.

18 Q. And by field work?

19 A. Yes.

20 Q. Would you agree that the forest
21 ecosystem classification system could also play a key
22 role in developing such links?

23 A. Well, if you're talking about
24 ecological land classification, that that essentially
25 develops those links and are part of it.

1 Q. That was a yes?

2 A. Yes.

3 Q. Is it your view that such links could
4 be established at a reasonable level of accuracy to
5 undertake wildlife habitat management at the present
6 time?

7 A. I believe so.

8 MADAM CHAIR: Mr. Hanna, I believe Dr.
9 McCormack's evidence was his ability to forecast those
10 associations would be 15 or 20 years into the future.

11 MR. HANNA: Indeed, Madam Chair, and I
12 think we attempted to get beyond that and, as I recall,
13 there was somewhat of a keffuffle and we never went
14 beyond that. But I agree, I think that was my
15 recollection also. I haven't gone back and checked the
16 transcripts, but that certainly is my recollection.

17 MR. CASSIDY: I'm going to try to look at
18 the transcripts overnight. I can't promise that I'm
19 going to be able to find it unless Mr. Hanna can
20 provide me with more direct assistance as to where it
21 is in the transcripts. Therefore, if I can't get it to
22 do my re-examination, I'll reserve my right to argue
23 down the end of the road that the transcript has not
24 been read accurately to this witness.

25 MR. HANNA: Madam Chair, just to clarify,

1 I don't want to get hung up on this one either. Let's
2 take Dr. McCormack out of it and I think I've asked the
3 question taking away Dr. McCormack's name from it.

4 Q. Dr. Eedy, do you have any reason to
5 believe that there is not sufficient understanding of
6 the relationships between the merchantable trees and
7 overstorey at the present time such that these links
8 could be established?

9 DR. EEDY: A. I guess as I said, my
10 understanding is from a forest resource inventory type
11 of map which is the merchantable forest, that to
12 establish that some spot ground truthing would be
13 required you can't just sit at a desk and go from one
14 to another. So this may be what Dr. McCormack meant by
15 the 10 to 15 years down the road.

16 MR. HANNA: Madam Chair, I don't know
17 what your schedule is now in terms of, I'm not looking
18 for a break, I'm simply trying to see how fast I have
19 to keep running here, and I'm wondering what your
20 schedule is with -- I think we're rising at 4:00 which
21 I only found out at the lunch break, but...

22 MADAM CHAIR: Yes, we're sitting 9:00 to
23 4:00 now, Mr. Hanna.

24 MR. HANNA: What time are you scheduling
25 your afternoon break?

1 MADAM CHAIR: Mr. Martel is our expert on
2 scheduling.

3 MR. MARTEL: 2:40.

4 MADAM CHAIR: Not 2:39.

5 MR. HANNA: I'll use that ten minutes
6 best I can.

7 MR. CASSIDY: Not 2:39.

8 MR. HANNA: Q. Okay. Can we move back
9 to your witness statement, Dr. Eedy. At page 8 you
10 make reference to another one of my favourite topics,
11 that is GIS, that's the geographic information systems,
12 that's in the third paragraph there.

13 Now, can habitat supply analysis be
14 applied without access to a GIS system?

15 DR. EEDY: A. Yes.

16 Q. With the availability of a GIS system
17 though, the HSA methodology can be carried out in a
18 much more efficient manner; is that fair?

19 A. The -- yes.

20 Q. Now, at the last sentence in that
21 paragraph you indicate that:

22 "Satellite imagery could be used today
23 to produce the GIS habitat maps."

24 Now, these satellite images are already
25 in digital form; are they not?

1 A. That's correct.

2 Q. So they're amenable at this time to a
3 GIS environment?

4 A. I think that would have to be
5 qualified, that the scale that one's dealing with with
6 the satellite imagery would be very broad from a
7 wildlife habitat point of view and it wouldn't -- there
8 would be -- I would certainly want to have more
9 localized scale information to make any great
10 conclusions as to wildlife habitat and that sort of
11 thing.

12 Q. So the level of resolution of these
13 images would be less than that that might be attainable
14 through on-the-ground surveys?

15 A. That's my belief. I'm not party to
16 some of the spy satellite kind of information that they
17 say they can see what you're doing in your backyard and
18 something like this, but the imagery that's available
19 to the general public to use, yes.

20 Q. Public domain imagery, like the spy
21 imagery, the resolution is quite fine, it's up to 10 by
22 10 metres; is it not, in that order?

23 A. That imagery, I wouldn't have
24 problems with. I guess my experience is more Landsat
25 kind of thing which is a little bit larger.

1 Q. But that type of resolution would be
2 a vast improvement over what we have at the present
3 time.

4 A. Certainly, yes. _

5 Q. And the barrier to attaining that
6 information at the present time is one of staff
7 training and equipment, not one of data availability;
8 is it?

9 A. That's my belief, yes.

10 Q. Do you foresee the use of these types
11 of information management tools becoming routine within
12 the next five to 10 years in timber management?

13 A. I don't know about routine, I think
14 that is more of a planning issue. I certainly think
15 they will be used, I know that they are being used
16 today.

17 Q. As a wildlife biologist would you
18 advocate their implementation as quickly as possible?

19 A. I would advocate their implementation
20 as quickly as practicable, I'll go back to that word.

21 Q. Fine. I would like to refer you to
22 the OFAH terms and conditions, specifically on page 26,
23 term and condition 148 to 151, and those terms and
24 conditions deal with geographic information systems. I
25 would like you to take just a minute to read those over

1 and then I'm going to ask you if you agree with those
2 as reasonable recommendations to implement that type of
3 system.

4 A. You want me to respond, or are you
5 going to ask a question?

6 Q. Yes. No, if there is something you
7 are not clear about I'm happy to have -- I want to make
8 sure you are clear about it first, before you agree.
9 So is there something you're not clear about?

10 A. No, I agree that the GIS system
11 certainly would be helpful to this whole analysing and
12 co-ordinating of information. I don't really believe
13 that I'm in a position to say who should have the
14 responsibility of implementing it or playing the lead
15 role or how it should be implemented as a tool. I
16 certainly feel that it's a very valuable tool.

17 Q. And so if you could imagine yourself
18 as a district biologist sitting on a planning team, you
19 would see it as being of considerable value to you in
20 terms of carrying out your duties?

21 A. I would see it as having considerable
22 value, yes.

23 Q. Now, looking at your witness
24 statement, on page 8 at the very bottom of that page
25 you make a statement - and I think we have touched on

1 this before - and that is:

2 "Care must be taken to verify these
3 models and the data they produce in field
4 situations."

5 And I think we have discussed that that
6 statement is pervasive, whether we're using subjective
7 manual assessments, whether we're using HSI or HSA or
8 whatever it is that we're applying on a management
9 basis level?

10 A. Yes.

11 Q. Now, it also carries over and the
12 next sentence there says:

13 "Even with substantial expenditures the
14 Models often include material error bands
15 requiring local site-specific refinements
16 to be accurate."

17 And again, that statement applies whether
18 we're using subjective manual assessments like the
19 moose guidelines or whether we're using HSA models;
20 correct?

21 A. Correct.

22 Q. Now, I understand what you're
23 proposing here to be basically a provincial level type
24 model that then can be applied at a local site-specific
25 level. Is that the general concept that you're

1 thinking of there?

2 A. Yes. I think from what I understand
3 usually models goes somewhat the other way, they're
4 usually developed on a local basis and then one applies
5 them to broader areas with adaptive techniques where
6 required.

7 Q. Okay. In order to utilize the
8 adaptive management approach with HSA models, would you
9 agree that there is a need for feedback in terms of
10 wildlife populations -- excuse me, in terms of wildlife
11 population response at the local level seeing that is
12 where they are being applied?

13 A. Yes, I think some feedback certainly
14 is needed.

15 Q. Is not a basic principle of adaptive
16 management that the management actions themselves be
17 treated as scientific experiments and the effects of
18 the management action be used as a primary basis to
19 refine the predictive tools?

20 A. That's correct.

21 Q. So that means the feedback has to
22 occur at that level that the action is taking place?

23 A. Yes.

24 Q. Now, the error bands that you refer
25 to, they only become apparent when you use an explicit

1 type model; is that not correct?

2 A. That's correct.

3 Q. They are there, in fact they can be
4 of equal width or even greater with implicit methods
5 such as the moose habitat guidelines, the only
6 difference being that they are not apparent due to the
7 very implicit qualitative nature of the application of
8 the guidelines?

9 A. They're more difficult to measure.

10 Q. Is not the fundamental principle of
11 the adaptive management approach to make explicit these
12 error bands and through discovery of the error to
13 improve our understanding?

14 A. Yeah, to lessen the error bands, yes.

15 Q. Is Beak supportive of the adaptive
16 management concept?

17 A. I think we are in general.

18 Q. As a wildlife ecologist, are you in
19 support of the adaptive management concept?

20 A. Yes. As I understand it, the
21 adaptive management is really a scientific methodology,
22 it's just a different term put to an old concept and I
23 think any scientist agrees with scientific methodology.

24 Q. With a very important though
25 difference and, that is, that the experiment becomes

1 the management action itself as opposed to a controlled
2 experiment in a strict scientific environment. That's
3 a key element in the adaptive management approach;
4 isn't it?

5 A. I guess you could term it that way.
6 I more see the experiment as resulting in the
7 management and being almost sort of like a second loop.

8 Q. But the loop is through the
9 management itself at the local site-specific level?

10 A. Yeah, it's sort of like two -- I
11 guess two wheels driving each other.

12 Q. Would you recommend to the Board that
13 as a wildlife ecologist that they take steps to ensure
14 that the adaptive management approach be implemented to
15 deal both with wood supply and habitat - I'll just
16 take out wood supply - would you recommend to the Board
17 that they take steps to ensure that the adaptive
18 management approach be implemented to deal with
19 wildlife habitat supply in the timber management
20 planning process?

21 A. I'm not sure that I want to make
22 recommendations on sort of a planning issue. As a
23 wildlife biologist I can see that having a feedback of
24 information on how you apply your models is certainly
25 going to help refine the model and will give a more

1 accurate predictive tool. I don't think I want to go
2 beyond that though.

3 Q. Fine.

4 MR. HANNA: Madam Chair, I'm just about
5 to start a new section. I apologize, Mr. Martel, for
6 being a minute over.

7 MADAM CHAIR: Two and a half minutes, Mr.
8 Hanna.

9 MR. MARTEL: We will get you, we won't
10 come back until two and a half minutes after.

11 MADAM CHAIR: Thank you, Mr. Hanna.

12 ---Recess taken at 2:42 p.m.

13 ---On resuming at 3:00 p.m.

14 MADAM CHAIR: The clocks are all
15 different in this office, if someone wants to set that
16 one to about three minutes after. There's a little
17 button at the bottom.

18 MR. HANNA: Dr. Eedy, I would like to
19 turn now to Section 1.4 of your witness statement and I
20 take as the major -- or one of the major thrusts in
21 this section that consideration should be given in
22 timber management planning to maintaining viable
23 wildlife populations.

24 Is that a fair assessment?

25 DR. EEDY: A. That's correct, I think as

1 a minimum, yes.

2 Q. As a minimum. Now, the Board has
3 already heard evidence, and I expect you have reviewed
4 the evidence by Dr. Euler, dealing with the viable
5 population monitoring approach that is being proposed,
6 and the concern that we have is the lag between the
7 time of significant decline in provincial populations
8 is noted and the time required to identify the cause
9 for the decline. Do you understand this concern?

10 A. I understand the concern, yes.

11 Q. Do you agree that there's a
12 reasonable concern?

13 A. I don't disagree that there -- that
14 if one -- if a population were to be affected to the
15 fact that it were approaching that sort of limit that
16 certainly any time delay in monitoring it could be a
17 problem.

18 I don't believe that monitoring has
19 really indicated that for the majority of species they
20 are anywhere near that limit, and I guess the -- where
21 it becomes important is that if you have a species
22 which is identified as being at or near that limit,
23 then monitoring should be increased for that species.

24 Q. Well, that is precisely my concern,
25 and let's just visit -- for a second I want to walk

1 through some of the concerns that we see with this and
2 just get your views on it.

3 Would you agree that in the event we saw
4 the population of say Connecticut warblers declining
5 significantly over an extended period of time in the
6 area of the undertaking, it may be five to 10 years
7 probably at least before we can be sure that the trend
8 is non-cyclic and is indeed likely persistent and
9 indicative?

10 A. I can -- I'm not certain as to that
11 species, just what the population trends are, but...

12 Q. Pick your species.

13 A. But in a generic sense, yes.

14 Q. Pick your species, what are we
15 talking about?

16 A. I know fluctuations of some species
17 would certainly make it difficult to tell whether they
18 were on a downward trend or whether it was just part of
19 the normal cycle.

20 Q. Just for the example here, I would
21 like to talk about a specific species. What do you
22 feel comfortable with? Give me an example.

23 A. Well, my -- I don't know, my
24 experience is -- has been more with mammals than with
25 birds, but...

1 Q. Okay. Well, let's just say we have
2 got a warbler, we'll call it warbler "x", okay, and
3 that's a type of species that is being proposed to be
4 monitored; is that correct, the migratory birds is one
5 of the major--

6 A. Mm-hmm.

7 Q. --groups that they are proposing to
8 monitor?

9 A. Yes.

10 Q. And there would be considerable delay
11 then with those populations because they do undergo
12 cycles; don't they, that we'd be able to be certain
13 that we're on a downward decline, a permanent downward
14 decline or a significant downward decline?

15 A. Yes.

16 Q. And now we're in the situation we've
17 seen there's a significant decline in the population,
18 we think it's indicative of something, there would then
19 be significant delay in determining why the population
20 had declined, studies would be required to isolate
21 factors causing decline; would you agree?

22 A. I think migratory birds are a special
23 problem in that I guess there is both a positive and
24 negative side; one, the positive side, there's a long
25 monitoring going on because of the amount of bird

1 watchers there are in the bird atlas project and things
2 like this; on the negative side, one is never clear
3 whether any population trend is the effect of something
4 that is happening here or something that is happening
5 where they winter or somewhere inbetween.

6 Q. Dr. Eedy, that sounds like a yes and
7 I'm not trying to handcuff you here or anything, but
8 the questions are I think quite pointed and the
9 question is: Studies would be required to isolate the
10 factors causing the decline?

11 A. Yes, that's true.

12 Q. And realistically there could be a
13 large number of factors causing the decline?

14 A. Yes, that is what I was saying.

15 Q. Optimistically it would take another
16 five or 10 years at least to define what the likely
17 cause of decline would be? You have to go out there
18 and collect the data and find out what's happening in
19 the Tropics and what's happening here and all over.

20 A. Yes, and cycles I think are generally
21 in the sort of four, five-year kind of range for a lot
22 of things anyway. That's true and the population
23 cycles are, with at least a lot of the animals that I'm
24 familiar with, are in the sort of four or five-year
25 range.

1 Q. Rough grouse, varying hares it's up
2 to 14 years; isn't it, or more?

3 A. That could be, I'm not --

4 Q. Well, varying hare is a mammal, you
5 know about mammals. Varying hare cycles are generally
6 a 14-year cycle; is it not?

7 A. That I'm uncertain of.

8 Q. So we've got this decline, we now
9 decide we've got a decline and we do our studies and we
10 then take another five to 10 years to figure out what's
11 causing the decline.

12 Okay. So now let's say we've decided --
13 we've have gone through that multi-factorial analysis
14 over whatever is required to define what caused the
15 decline and let's assume for now that it was concluded
16 that loss of habitat in the summer breeding range was
17 the critical factor causing the population decline.
18 Just assume that.

19 A. Mm-hmm.

20 Q. We would then be faced with
21 identifying those sites that are suitable breeding
22 sites for warbler "x" and implementing actions in the
23 timber management process that would lead to the
24 creation of suitable habitat. That is what we would
25 do; right?

1 A. Yeah, if that were the conclusion.

2 Q. And then there would be an additional
3 time lag between the time that the timber management
4 action was taken, whether it's increased tending,
5 change in our cutting patterns or whatever it is, and
6 the new habitat being created, particularly if the
7 habitat is a mature later stage of forest development;
8 correct?

9 A. Yes, assuming that that habitat is
10 very limited in distribution.

11 Q. It's all hinging on that assumption,
12 I agree. And to get that later stage of forest it
13 could be a considerable period of time?

14 A. Yes.

15 Q. Is that not a reasonable concern, Dr.
16 Eedy?

17 A. I guess with all of those assumptions
18 taken in it is. I think that there --

19 Q. Can I just --

20 A. I don't know of a species which is
21 limited in its distribution and habitat type that it
22 requires, to the extent that with the amount that the
23 type of harvesting that's going on, is going to totally
24 eradicate that habitat where there would be no other
25 options or alternatives available for that species.

1 Q. See, the assumption you're saying it
2 hinges on is when I said, let's assume that it's the
3 loss of habitat in the summer breeding range that's the
4 cause, that is the assumption you have problems with?

5 A. And that that habitat is so limited
6 in its extent that one particular cutting harvesting
7 activity is going to destroy all at one time. So there
8 is no remaining habitat left.

9 Q. Or significantly alter the whole
10 structure of the forest within the area of the
11 undertaking over a rotation of the forest such that
12 that might occur?

13 A. Yes, over --

14 Q. Okay. But the other assumptions I
15 gave you, the length of time it would take to detect
16 the trend, the length of time to determine the causes,
17 and then the feedback in terms of the management
18 actions, you haven't any problems with those
19 assumptions; do you?

20 A. No.

21 Q. Just that one assumption?

22 A. That's the main problem I have, yes.

23 Q. Now, would you agree that an
24 alternate way to try and deal with such possible
25 eventualities -- what you're saying is right now we

1 haven't got a problem as far as you can see in terms of
2 altering the habitat such that you'd had expect those
3 concerns, but let's -- there is the possibility?

4 A. Well, yes.

5 Q. And one way to head that off, because
6 it may be too late by the time we detect it, one way to
7 head it off would be to ensure that the timber
8 management planning process -- ensures through the
9 timber management planning process that a reasonable
10 representation of habitat types now and in the future
11 is specified at some minimum level of supply?

12 A. On a provincial basis, yes.

13 Q. And that is one way to at least deal
14 with the habitat concern, we can't deal with all those
15 other factors, but that's one way to assure that?

16 A. Yes.

17 Q. Are you familiar with the -- well, I
18 think I already asked you, you're familiar with the
19 forest ecosystem classification systems; there's
20 several in the province.

21 A. Yeah. Well, not each particular one,
22 but I'm aware of them in an ecological --

23 Q. Yes. I'm not going to ask you what
24 FEC 39 is in northwestern Ontario. These systems
25 have developed a comprehensive assessment of the forest

1 ecosystem components within the areas that they apply?

2 A. Yes.

3 Q. If one were to specify some
4 representation by forest ecosystem classification
5 groups across the area of the undertaking relative to
6 their current supply, would this not provide some
7 guarantee that a minimum viable population of all the
8 wildlife species depending on the forest could be
9 supported, at least as far as the habitat requirements
10 are concerned?

11 A. I think it would have to be, again, a
12 dynamic sort of situation because these ecological
13 classes or ecosystems or whatever aren't static and
14 part of really what I've been trying to look at is the
15 fact that at any one time one should have this variety
16 of things, but if one doesn't continually recycle each
17 of these areas you'll end up lacking that.

18 Q. What I'm hearing you saying is that
19 each forest ecosystem unit consists of a set of serial
20 stages or successional stages in terms of the forest;
21 is that correct?

22 A. That's correct.

23 Q. And you'd like to maintain a
24 reasonable distribution or a reasonable supply of those
25 stages?

1 A. Yes.

2 Q. And if you define that on a forest
3 ecosystem basis that will provide some basis to define
4 in a measurable way, in Dr. Baskerville's type terms,
5 biodiversity?

6 A. That's correct.

7 Q. And you would support that as a
8 wildlife biologist?

9 A. I think that's -- as a wildlife
10 biologist.

11 Q. Would that not give you greater
12 assurance than attempting to rely solely on population
13 monitoring of migratory birds to ensure that type of
14 diversity, at least with respect to passerine birds
15 breeding in the boreal forest?

16 A. You mean, I would have more--

17 Q. Confidence.

18 A. --confidence in knowing that
19 diversity of habitat is there than trying to monitor
20 the population.

21 Q. Yes.

22 A. Yes.

23 Q. I would like now to talk about the
24 matter of endangered and threatened and rare species
25 and I believe you deal with this on page 10 of your

1 witness statement, and I'm looking here at the first
2 paragraph on page 10, the first full paragraph, the
3 first sentence, and you make reference here to
4 provincially, nationally and internationally vulnerable
5 threatened, rare, endangered species as being the
6 exception.

7 Now, you didn't make any reference in
8 here to locally or regionally vulnerable threatened,
9 rare, endangered species. Was there a reason why you
10 didn't include those?

11 A. Yes, I think we went into this this
12 morning or earlier this afternoon.

13 Q. When you make your definition of
14 featured species and said in your interpretation
15 featured species deals with the two provincial species
16 and also locally significant species?

17 A. No, no. When I said that I really
18 feel that locally or regionally rare species which are
19 well represented elsewhere is more of a social issue
20 than an ecological issue; whereas I feel that the
21 species that are nationally or provincially rare, I
22 suppose even saying provincially. I mean, you could
23 have something that has a large population in the
24 States and only just gets into Point Pelee kind of
25 thing which would be provincially rare and not really a

1 a rare species.

2 When I talk about rare or endangered, I
3 mean these are the populations rare and endangered, and
4 I'm not talking about geographical distributions
5 because very few wildlife species respect the sort of
6 artificial geography that we have placed on the map.

7 Q. So you're suggesting then, if I take
8 what I hear you saying, is that we should drop
9 provincially, nationally and internationally because
10 those are all just artificial political boundaries,
11 you're saying all you're really concerned about as an
12 ecologist is the overall wildlife population?

13 A. Again, one's getting into an area
14 where it's difficult to separate again social versus
15 scientific perspectives, and I think one has to, I
16 guess, draw a line somewhere in this consideration.

17 But I think from an ecological
18 perspective that I would prefer to just call them rare
19 and endangered species and not say whether they are
20 regionally, locally. You know, if one carried it too
21 far, one could say that on my property I don't have
22 this species, so if one happens to land there it's rare
23 on my property.

24 Q. So you're suggesting there's a
25 certain arbitrariness in terms of the geographic context

1 within which we make the evaluation?

2 A. That's correct.

3 Q. Are you suggesting that we should not
4 concern ourselves with locally or regionally
5 significant species?

6 A. No, I'm not. I think that one has to
7 place different levels of concern on the different
8 aspects and I guess it's overall perspective, if one's
9 looking at the, I guess, at the species gene pool in
10 general as to whether it is present somewhere in
11 sufficient numbers to not be considered rare and
12 endangered.

13 Q. That is one concern, but then there's
14 also the concern of wanting to have a reasonable
15 distribution of them over the province in terms of
16 resiliency in terms of genetic diversity and in terms
17 of all other sorts of good things; do you not agree?

18 A. I think it's a difficult thing to say
19 where the cut-off point is, as to regionally versus --
20 I feel that if things are internationally endangered, I
21 would consider that being more important from a
22 protective point of view than if it were locally or
23 regionally endangered.

24 I mean, regionally endangered could mean
25 that there's a large population in Toronto but they

1 just don't happen to cross the border into Halton or
2 into Peel. I mean, that is a rather arbitrary sort of
3 look at things.

4 Q. Okay. So is what I'm hearing you
5 saying is: Yeah, locally and regionally significant
6 species are important, but in terms of weight the
7 emphasis, the level of protection, it should be
8 balanced in terms of their overall abundance?

9 A. Yes.

10 Q. Okay. I would like now to have you
11 turn to page 20 of the OFAH terms and conditions and
12 particularly terms and conditions 110 and 111, which is
13 under the heading Featured and Other Significant
14 Species.

15 This sets out a procedure whereby the
16 type of local decisions in terms of weight and
17 importance could be determined; does it not?

18 A. That's what it does, yes.

19 Q. Based upon your experience in dealing
20 with these types of things, does this appear as a
21 reasonable approach to you?

22 A. I think it appears reasonable.

23 Q. Have similar types of issues been
24 addressed by COSEWIC and others in terms of developing
25 protocol and making such determinations as are set out

1 in particularly term and condition 10 that could be
2 used in assisting and implementing these terms and
3 conditions?

4 A. You mean 110.

5 Q. 110, I'm sorry.

6 A. I think there are -- there have been
7 similar protocol, I don't know that they have always
8 been totally successful. I know COSEWIC sometimes has
9 considerable debate over how a species exactly should
10 be designated. I guess my one, again, qualification on
11 that is I'm certainly not the person to say who's
12 responsible for doing this.

13 Q. No, I understand that, but the point
14 that you've made is exactly what I was asking you,
15 COSEWIC has debated many of these -- many of the issues
16 that revolve around this and do provide a good
17 experience on which to implement such an approach?

18 A. I would say they have considerable
19 experience in this, yes.

20 Q. Now, with respect to locally and
21 provincially important species, is it your experience
22 that these wildlife species generally go unnoticed
23 until a detailed biological reconnaissance is conducted?

24 A. I'm not certain of that because I
25 think in -- I guess, it depends on what you mean by

1 detailed biological reconnaissance. I think in a lot of
2 cases some of the best information we have on rare
3 species comes through amateur naturalists who have an
4 interest in various types of species.

5 This is especially true with the amount
6 of information we have on birds. I know that the
7 Ontario Naturalist Rare Breeding Bird Information
8 Program is substantial and I don't think that that is
9 what one would define as a sort of detailed biological
10 survey, it's more people going out and making casual
11 observations.

12 Q. But people have to know what they're
13 look for?

14 A. Yes.

15 Q. And they have to have access to the
16 areas in order to look for them?

17 A. Well, yes.

18 Q. Do we have comprehensive distribution
19 maps for all the species identified by COSEWIC that
20 occur in the area of the undertaking?

21 A. I don't think we do, no.

22 Q. Would you agree that our knowledge of
23 locally and regionally significant rare and threatened
24 species is even less than that for most of the COSEWIC
25 species?

1 A. I'm not certain of that because I
2 know -- I think a lot of the -- you're saying locally
3 or provincially?

4 Q. Locally and provincially -- locally
5 and regionally, I believe is the actual words I used.

6 A. Again, it depends on where one is. I
7 know some areas where there is a great abundance of
8 information on locally and regionally "rare species".

9 In fact, in many cases this information
10 has grown to the extent that -- well, for example, with
11 the Virginia white butterfly, that there is some
12 contention as to whether it really is a rare species or
13 not, and I'm not disagreeing but I know that there
14 certainly is quite a bit of information over the last
15 few years.

16 Q. In that particular species though,
17 No. 1, it occurs in a highly populated part of the
18 province?

19 A. That's correct.

20 Q. And No. 2, it has received
21 considerable attention in terms of biological surveys?

22 A. But this is generally with -- when
23 species are designated as rare, they generally receive
24 more concern than species that aren't.

25 Q. But even with that species, which I

1 believe is an endangered species; is it not?

2 A. I believe under the Ontario Act it
3 is.

4 Q. Even with that species, as recently
5 as within several months new occurrences have been
6 found; right?

7 A. Yes.

8 Q. Though it's only until we look, even
9 when we have an endangered species in highly populated
10 and accessible areas do we have that kind of knowledge
11 coming forward; do you agree?

12 A. Yes. I think in a lot of cases this
13 may be and especially with regionally or locally rare
14 species, I think not all cases, but certainly in some
15 case just the fact that they have not been looked for
16 and not been found maybe why they're so designated.
17 They may be a lot more common than was thought.

18 Q. And so as that knowledge becomes
19 available, we have to be able to revise and review
20 those designations as appropriate?

21 A. I'm not going to argue with that.

22 Q. And that's one of the procedures that
23 is set out in condition 110; isn't it?

24 A. That's correct.

25 Q. I would like now to look at term and

1 conditions 156 to 159 which are on page 27 under the
2 heading Minimum Information Requirements. I would like
3 you to take a moment to review those, please.

4 Okay, you've read it? I just want to
5 make sure you've read it.

6 A. Yes.

7 Q. Would you agree that only through
8 reconnaissance level on-site surveys that many of the
9 COSEWIC species that you've identified and other
10 locally and regionally significant species can be
11 identified?

12 A. I think the problem I have with that
13 is that in a lot of cases I feel even on site
14 reconnaissance and identification as is suggested there,
15 probably would not find species if they really are
16 rare.

17 Q. For example --

18 A. Well, rare species are rare because
19 there aren't very many of them around and because of
20 that they are difficult to find.

21 Q. Let's say merlins, if I was out and
22 was to take a reconnaissance survey of a stand, would
23 you expect to be able to find the merlins if they were
24 there, especially during the breeding season with them
25 calling over your head and hackling you -- heckling

1 you, excuse me.

2 A. I guess what I'm -- I don't disagree
3 with that. I guess the point is the reconnaissance
4 - level. I was really thinking you were proposing that
5 one sort of walk every kilometre of every road kind of
6 thing, which I don't think -- I think to identify the
7 potential -- I think all with those you would have to
8 start off with .2 of the likelihood of the species
9 being there and if there was a reasonable likelihood of
10 the species being there, that a reconnaissance level
11 survey would establish whether it is or would not be
12 reasonable.

13 Q. But isn't it a chicken and egg type
14 of situation, Dr. Eedy? You yourself said we may not
15 know they're there because they're rare, often we won't
16 know even to expect them to be there unless we've been
17 out there and looked? It's very hard to know where a
18 rare species is going to show up; isn't it, Dr. Eedy?

19 A. Yes, it's very hard even to know if
20 one were to spend, you know, a week on the site or
21 whatever.

22 Q. So you're saying we have to be --

23 A. It may be there one year and not
24 another, but I have found that certainly in my
25 experience when there are rare species there is a

1 fairly good likelihood that they will have been
2 noticed, and it's quite often --

3 Q. Well, your experience has been
4 different than mine, but I won't deal with that now,
5 Dr. Eedy.

6 Now, Dr. Eedy, the point simply is:
7 Would you not feel more confident having gone out and
8 looked rather than not having gone out and looked?

9 A. Well, certainly it would increase the
10 confidence.

11 Q. And the balance that you're
12 suggesting is the level of effort that you expend on
13 that?

14 A. Yes, I think that is something that
15 that would really need to be considered.

16 Q. And in speaking in areas where we
17 have no information, for all intents and purposes it's
18 very difficult to make that determination without some
19 basic field information?

20 A. Yeah. I think, again, my experience
21 is I don't think there are areas where we have no
22 information, I think there are varying levels of
23 information and I would agree that the less information
24 one has, if there is some reason to expect there are
25 rare and endangered species in the area that would lead

1 more -- would lead to more need to have some level of
2 field experience.

3 Q. Not just endangered species, locally
4 significant, regionally significant?

5 A. Yeah.

6 Q. If we felt there were significant
7 species?

8 Now, is it your experience as a
9 professional biologist that on-site reconnaissance level
10 biological surveys are typically undertaken for major
11 proposals such as the little Jackfish River Hydro dam?

12 A. Yes. I've certainly experienced
13 on-site reconnaissance level surveys for that type of
14 development.

15 Q. And would you suggest that's the
16 normal in most cases? you ever undertaken an
17 environmental --

18 A. Well, it's a difficult situation
19 because my job has been generally to undertake these
20 circumstances, so certainly my experience has been on
21 such things, but then there may be things out there
22 that I haven't experienced.

23 Q. I didn't ask for you to deal outside
24 your experience, none of us can do that. My question
25 was: In your experience in dealing with these types

1 of --

2 A. Yes, it is normal in my experience.

3 Q. Now, why is it, in your view,
4 appropriate to undertake such reconnaissance level
5 surveys if one is proposing a Hydro electric dam, a new
6 highway, some other type of activity and not in the
7 case of disturbances like building a forest access
8 road?

9 A. I think there is a degree. I'm not
10 saying it is or isn't. My understanding of some of
11 the, say, primary or I guess it's tertiary -- the small
12 local access roads, I really -- I don't see that doing
13 any kind of detailed survey work is going to help to a
14 great extent because I think in many cases these are in
15 areas which are not going to be further impacted on or
16 would be for very short periods of time and probably
17 wouldn't have an impact on rare and endangered species.

18 So I think one has to sort of, in cases
19 where there's an action taking place that could have a
20 significant impact on an endangered species and there's
21 any reason to believe that that species may be in the
22 area, I think field reconnaissance is certainly not a
23 bad idea.

24 Q. And it's not just again endangered
25 species, it's those species that are seen as being

1 locally significant?

2 A. Yeah.

3 Q. That may be a provincially endangered
4 species or it may be a locally significant species?

5 A. Yes.

6 Q. Now, the last topic here that I want
7 to deal with you on is the last paragraph on page 10
8 before you present your conclusions, and that is your
9 endorsement of the monitoring proposals by the Ministry
10 of Natural Resources, and you refer specifically to
11 conditions 45, 52(a) and 57.

12 And I would like to look first at 45, and
13 I think you should look at the wording of that term and
14 condition, if you would, first.

15 A. Yes.

16 Q. And I would like to compare that
17 wording with the wording that we have used in our term
18 and condition 110.

19 I want you to look at this as a wildlife
20 biologist and confirm for me that the MNR term and
21 condition provides no definition of the minimum level
22 of information that is required or how that information
23 should be obtained -- or how it should be specified,
24 excuse me.

25 A. It's not specific on those aspects.

1 Q. Unlike the procedure that's set out
2 in 110 in the OFAH term and condition and the minimum
3 level of information terms and conditions I referred
4 you to on page 27.

5 MR. CASSIDY: I might note for the record
6 that as the Board is aware - and it's contained in one
7 of your orders - the Ministry on June 15th provided a
8 redraft of its terms and conditions to all the parties
9 and in fact a redraft by MNR is scheduled for August
10 3rd.

11 I have not had the opportunity to compare
12 that redraft since June 15th was last Friday and today
13 is Tuesday to this particular term and condition that
14 Mr. Hanna is cross-examining the witness on and it's
15 obvious that this witness has not seen that redraft
16 because we are not allowed to communicate with them;
17 therefore, this evidence would, I would submit, have to
18 be taken in light of what may very well be a changed
19 term and condition.

20 I can't comment on the fact that it has
21 changed because I have not had the opportunity to
22 compare, but the Board should be aware of that.
23 Obviously down the road, if there is a need for reply
24 evidence eiither from the Ministry on this issue or
25 even from ourselves in terms of asking the Board to

1 comment, in light of the redraft, this evidence should
2 be taken with that in mind.

3 MR. HANNA: Madam Chair, I would suggest
4 if that is the case we are all faced with this.

5 MR. CASSIDY: Yes.

6 MR. HANNA: I like, Mr. Cassidy, have not
7 had the chance to review the June 15th submission by
8 the Ministry. I am faced with the terms and conditions
9 I have here at the present time, I am faced with this
10 witness, I have no problem with what Mr. Cassidy is
11 saying.

12 That that should be taken under
13 advisement in terms of reply evidence and whatever by
14 at least the Industry, that does concern me because I
15 think we are all faced with the same situation and we
16 have to make the best of it we can.

17 But I certainly have no problem with what
18 Mr. Cassidy is saying that certainly there may be a
19 redraft of that and that should be taken into account,
20 no problem.

21 MR. CASSIDY: With respect, Mr. Hanna, we
22 are not all faced with that same situation. My client
23 is the only client who is putting in its evidence
24 before it sees the Ministry's final terms and in fact
25 will be off the stand by that date.

1 I'm not asking for a right of reply
2 because we've not had an opportunity, we just got the
3 document on June 15th and in fact it won't even be in
4 final form until August 3rd because the Ministry has
5 indicated its intention after consulting with the
6 parties to redraft again and file it on August 3rd.

7 I'm just indicating that that may be a
8 possibility given the anomalous situation that my
9 client finds itself in.

10 The witness statements that Mr. Hanna is
11 cross-examining on - and I'm not objecting to his
12 questions - were written on the basis that the draft
13 terms and conditions would be essentially the final
14 terms subject to fine-tuning.

15 We then embarked on a process of
16 redrafting as a result of the negotiation sessions and,
17 therefore, we find ourselves in this situation. It may
18 not call for reply, I'm not asking for it at the
19 presentm time.

20 MR. HANNA: Q. Dr. Eedy, would you agree
21 that this term and condition does not provide the same
22 level of specification in terms of --

23 DR. EEDY: A. I would agree that your
24 terms and conditions are more specific in what they are
25 requiring in the same area. It doesn't mean that the

1 intent is different.

2 Q. Do you see benefit in specifying as
3 exactly as practical the minimum level of information
4 to forest managers in terms of terrestrial wildlife?

5 A. I see that as a benefit.

6 Q. Now, the other endorsement that you
7 make on page 10 is term and condition 52(a) of the
8 Ministry of Natural Resources and 52(a) deals with
9 the -- 52(a) deals with the effects/effectiveness
10 monitoring program for the moose habitat guidelines;
11 correct?

12 A. Yes.

13 Q. I take it that in arriving at your
14 endorsement you reviewed the evidence of Panel 16 of
15 the Ministry of Natural Resources and the related
16 documentation?

17 A. I believe so, yes.

18 Q. That was the effects monitoring
19 panel.

20 A. Was it? Yes.

21 Q. As you may know, the Ontario
22 Federation of Anglers & Hunters is opposed to the moose
23 monitoring study as currently designed, and I wish to
24 explore the reason why Beak and particularly you as a
25 wildlife ecologist have endorsed the study.

1 And I, first of all, want to make sure
2 that I understand your endorsement. Is your
3 endorsement the principle -- have you endorsed the
4 principle of the need for long-term scientific studies
5 of the impacts of timber management on moose
6 populations, or have you endorsed the specific
7 monitoring program proposed for moose?

8 A. Specifically what we have endorsed is
9 what is in this document, the long-term scientific
10 studies to assess the effectiveness of provincial moose
11 guidelines.

12 Q. So you're endorsing the concept of
13 attempting to test the efficacy of the guidelines?

14 A. That's correct.

15 Q. And you've thought that through from
16 a scientific point of view of the implications of that
17 and how that might be carried out?

18 A. I don't have a defined plan in my
19 mind as to exactly how that would be carried out, but I
20 certainly agree with it generically in general terms.

21 Q. Now, given what we have discussed
22 today about the subjective nature of the guidelines,
23 you recall the subjective manual assessment procedure
24 we talked about in Dr. Kansas' paper, your colleague in
25 Beak, the implicit nature of the relationships, all the

1 other difficulties that we have talked about in terms
2 of subjective assessments. How do you see as a
3 scientist testing that?

4 A. You mean in testing the guidelines or
5 in testing the model or what?

6 Q. Well, the words are right here, Dr.
7 Eedy, it's testing the efficacy of the guidelines.
8 Now, in terms of efficacy, I submit to you that has
9 some concept of a relational underpinning, if that
10 relational underpinning is contained within the minds
11 of biologists spread across this province, how can you
12 scientifically test it, especially when each might be
13 dramatically different?

14 A. Well, I think in terms of what we
15 have discussed - and I certainly haven't thought up a
16 methodology specifically because I think, you know, to
17 come up with a methodology for testing this is
18 something that requires more than just a little bit of
19 thought - but I could certainly see the modeling
20 approach being a tool that could be used to test this
21 kind of guidelines.

22 Q. But you aren't testing the guidelines
23 then because the guidelines have embedded in them a
24 different relationship. Isn't really what the
25 important question, the quantitative relationship

1 between the various habitat configurations and moose
2 productivity?

3 A. Yes.

4 Q. And that's what a habitat supply
5 model is?

6 A. Mm-hmm.

7 Q. That is testable; is it not?

8 A. It's testable, yes.

9 Q. One of the problems with subjective
10 assessments is they are not testable because they're
11 implicit?

12 A. Yes, one can still do monitoring in
13 areas where they are applied to see whether they worked
14 or not.

15 Q. But the only way you know they
16 worked, Dr. Eedy, is if you say: Here's how I expect
17 the moose will respond to that habitat, here's what I
18 expect the population will be, and I have laid that out
19 explicitly. That's the only way I can test it; isn't
20 it?

21 A. I don't know that it's the only way.

22 Q. Is there another scientific way to
23 test it?

24 A. Well, when I'm thinking of the
25 guidelines, if there is -- if one were to use a test

1 area and monitor before and afterwards, one could see
2 how the population reacts to the guidelines without
3 necessarily forming a model hypothesis.

4 Q. What are the guidelines? What are
5 these -- what do you mean with the guidelines? To
6 apply the guidelines I have to have that subjective
7 manual assessment; don't I?

8 A. I'm sorry, I may be --

9 Q. Isn't the guidelines a subjective
10 manual assessment. We have already determined that,
11 earlier you said yes.

12 A. Yes.

13 Q. So it's an -- so in order to test
14 that subjective manual assessment, I have to make it
15 explicit. If I leave it implicit, I don't make a
16 connection between the assessment and the population, I
17 can't test it.

18 A. You can certainly test whether there
19 has been an effect on an area of some activity which
20 follows or does not follow the guidelines, if you
21 wanted to do it that way.

22 Q. For example?

23 A. Well, if you designed test plots and
24 you followed the guidelines in one and you didn't in
25 another and then see if -- what the difference.

1 Q. But what's following the guidelines,
2 Dr. Eedy? The guidelines -- remember what the
3 guidelines are, they're guidelines, they're guidelines
4 to be applied by individual wildlife managers on a
5 discretionary basis, the Board has heard that ad
6 nauseam.

7 So it isn't as if the guidelines say:
8 This is what you do. The guidelines are applied
9 differently everywhere you go. We aren't testing
10 anything.

11 A. One would then have to document the
12 application to determine whether the difference in
13 application has a difference in effect.

14 Q. Right. And with respect to
15 documenting that, we're documenting explicitly the
16 implicit manual assessment -- subjective manual
17 assessment; correct?

18 A. Correct.

19 Q. And once we have done that we're all
20 of a sudden into a new forum, we have now for all
21 intents and purposes changed into a habitat supply
22 modeling for environment; have we not?

23 A. We have made explicit what was
24 implicit.

25 A. Yes.

1 Q. Now, the concern that my client has
2 is if we start on a study that is designed to test
3 guidelines and that study takes 15 years in order to
4 come out -- arrive at a conclusion, you'll have to
5 continue to apply the guidelines for at least 15 years
6 in order to come to a conclusion.

7 Do you not see that as a barrier in terms
8 of implementing alternate approaches?

9 A. Yeah, if one were to assume it took
10 15 years, yes.

11 Q. Well, what -- maybe I didn't read the
12 program. Aren't they talking up to in fact 25 years in
13 some cases?

14 A. Yes.

15 Q. Now, back to the adaptive management
16 approach. I believe we agreed that the adaptive
17 management approach revolves around a concept of using
18 the management actions as experiments rather than
19 formal scientific controlled studies; do you agree with
20 that?

21 A. Yes.

22 Q. In endorsing condition 52(a), have
23 you examined and rejected the alternative method of
24 evaluating moose habitat relationships in the area of
25 the undertaking using adaptive management, habitat

1 supply analysis type of approach?

2 A. We certainly aren't recommending one
3 over the other, no.

4 Q. Have you evaluated that alternative?

5 A. I haven't really in those terms. In
6 our report we certainly looked at the -- recommended it
7 as a viable approach.

8 Q. Have you considered the terms and
9 conditions of the Ontario Federation of Anglers &
10 Hunters 92 through 96 that deal with effects
11 monitoring?

12 A. Yes.

13 Q. Have you rejected the proposals
14 contained in this section?

15 A. I guess I'd have to look at them,
16 some of them individually.

17 Q. Would you please focus on 92, that is
18 the important one for our discussion.

19 A. Okay, that's what I was really
20 looking at. The point (i) there: "For all objectives
21 contained in a TMP...", I'm not certain what all the
22 objectives are.

23 Q. You're a wildlife biologist, let's
24 just deal with wildlife. Don't worry about all those
25 other objectives, I'm just asking you here as a

1 wildlife biologist. Mr. Cassidy has made it very clear
2 to me the limit of your expertise.

3 MR. CASSIDY: Well, no, I'm making very
4 clear the limits of proper cross-examination. The
5 limits of his expertise are clear in the witness
6 statement.

7 DR. EEDY: Yes. As a wildlife biologist
8 and from a wildlife management perspective I certainly
9 don't disagree that one requires some adaptive
10 management type of approach. How this is utilized in
11 the timber management planning and decision-making
12 process I think is beyond --

13 MR. HANNA: Q. Whoa, whoa, whoa. We
14 aren't asking about that, we're talking about effects
15 monitoring, scientific research, those things that are
16 clearly within your area of expertise. I'm asking you
17 from a scientific point of view as a wildlife
18 ecologist.

19 DR. EEDY: A. From a scientific point of
20 view as a wildlife ecologist, yes.

21 Q. You support term and condition 92
22 which is an adaptive approach -- adaptive management
23 approach?

24 A. Adaptive approach, yes. You know, it
25 goes -- I think that term and conditions goes along --

1 well beyond that.

2 Q. Well beyond an adaptive management
3 approach?

4 A. No, well beyond the wildlife
5 management perspective.

6 Q. Yes, but we are limiting ourselves to
7 wildlife management here. So now, I'm sort of in the
8 twilight zone at the present time - that may be because
9 of the hour - but also because of, I have two
10 endorsements on the table, I have you saying: Well,
11 yeah, I can see there's some benefit in what you're
12 proposing there, Mr. Hanna -- or the Ontario Federation
13 of Anglers & Hunters is proposing on term and condition
14 92, but I have also an endorsement of 52(a) and those
15 are two, in my view, dramatically different approaches
16 to addressing that problem. Do you not agree?

17 A. They are different approaches. I
18 don't see that, you know, it's impossible to approach
19 the same question with different approaches.

20 Q. No question, and I think this stands
21 evidence of that. What I'm asking you is: You've
22 endorsed both approaches as far as I see it at the
23 present time.

24 MADAM CHAIR: Well, Mr. Hanna, he's
25 looked at yours for the last three minutes. Perhaps if

1 he had longer to reflect on it he would have a
2 different opinion.

3 MR. HANNA: I did ask him if he'd had a
4 chance to review this and whatever, Madam Chair, but I
5 certainly take your advice. I'm clearly not finished.

6 DR. EEDY: I guess one point on this is
7 that I don't really see the difference that, you know,
8 that the timber management guidelines cannot be
9 monitored with an adaptive management approach. I
10 guess that's...

11 MR. HANNA: Q. Dr. Eedy, need I take you
12 back to --

13 MR. FREIDIN: Well, let him finish -- can
14 he finish his answer?

15 MR. HANNA: Sorry, I thought he was
16 finished.

17 DR. EEDY: If the guidelines do have some
18 flexibility in their application and that sort of
19 thing, then I would think part of that essentially is
20 what one would adapt using the adaptive management
21 approach.

22 MR. HANNA: Q. Dr. Eedy, I'm looking now
23 at page 363 of the Panel 8 witness statement which is
24 Exhibit 378, page -- or the right-hand column, Dr.
25 Baskerville lays out nine steps of adaptive management.

1 DR. EEDY: A. Which page is this?

2 Q. I think I've given all my copies
3 away.

4 MADAM CHAIR: I think it's page 175.

5 DR. EEDY: This is in 381.

6 MR. CASSIDY: 378.

7 MR. HANNA: 378, it's page 363. (handed)

8 DR. EEDY: Oh, okay. I have that, yeah.

9 MR. HANNA: Q. And this is Dean
10 Baskerville describing adaptive management, and in
11 point two he makes a very important observation in
12 terms of adaptive management, he says:

13 "The links among the goals, the
14 cause/effect system dynamics and the
15 possible management actions are
16 explicitly stated usually in a model for
17 a system forecasting tool."

18 We've just determined I thought that the
19 guidelines are a subjective manual system that do not
20 have explicit cause/effect relationships.

21 Now, how can you practice adaptive
22 management with a system that patently violates a
23 primary requirement of adaptive management?

24 DR. EEDY: A. Well, my understanding is
25 that the long-term scientific studies to assess the

1 effectiveness in the MNR's condition 52 would basically
2 be a step to take that out of the subjectiveness and
3 put it into a more objective and measurable term with
4 the ability to monitor or to regulate those or use
5 those guidelines, apply those guidelines with some
6 flexibility based on the feedback from that monitoring.

7 Q. Dr. Eedy, need we go back again to
8 the another basic concept of adaptive management; and,
9 that is, that the management action is the experiment
10 as opposed to separate what I'll call classic
11 scientific research?

12 A. I don't see a great difference
13 between that. One is -- I see that the adaptive
14 management is what is driving the management tool.

15 Q. Dr. Eedy, in the interest of time,
16 with the indulgence of the Board I'm going to be
17 talking to you tomorrow morning on a paper by Dean
18 Baskerville entitled: Some Scientific Issues in
19 Cumulative Environmental Impact Assessment, I believe
20 it's Exhibit 979.

21 I would ask you to read that very
22 carefully because I will be going through that with
23 respect to the statements that you've made in the
24 latter part of this afternoon.

25 I would ask when you look at that paper

1 that you look also at this paper that Dean Baskerville
2 has written on adaptive management and wood
3 availability and habitat availability and the OFAH term
4 and condition that I just referred you to, 92, and the
5 Ministry's term and condition 52(a), and hopefully that
6 will give you some time to reflect on this and come
7 back with a considered opinion tomorrow morning.

8 MADAM CHAIR: Are we finished, Mr. Hanna?

9 The Board has one suggestion for tomorrow
10 morning. When we go through some of these articles
11 written by Dean Baskerville, the Board has of course
12 heard Dean Baskerville for two weeks and the Board
13 would just make the comment that listening to Dean
14 Baskerville's opinions are very different than reading
15 what might be characterized as almost impenetrable
16 gibberish in some of the technical terms that he uses.

17 It's not helpful to the Board to quote
18 some of this material. If you want to make a point,
19 make it in plain English. Dean Baskerville was
20 successful in doing that, and we would just appreciate
21 if you would translate the concepts very simply. They
22 is simply no point in quoting out of context or in the
23 context of these articles, some of this terminology.

24 MR. HANNA: Madam Chair, I appreciate
25 your comments and I have been attempting to do that,

1 but with the greatest respect to the Board, these are
2 exhibits before the Board.

3 MADAM CHAIR: And we have heard the
4 witness himself, Mr. Hanna, we are very well aware of
5 where Dean Baskerville stands on this evidence and what
6 his views are.

7 MR. HANNA: Yes. I understand, Madam
8 Chair, but these are exhibits before this Board, this
9 is a technical witness that I'm dealing with, this is
10 very technical subject, and with the greatest respect
11 to the Board, I understand you may not understand
12 what's going on at this point in the case, and I
13 understand the difficulty that you have.

14 MADAM CHAIR: We understand very well
15 what's going on at this point in the case, Mr. Hanna,
16 and I think Dr. Eedy has attempted today in his own way
17 to cut through some of the terminology to try to
18 explain himself simply, and I'm just pointing out that
19 tomorrow morning, when we go through another one of
20 Dean Baskerville's articles, it's very helpful to set
21 aside formally some of the ways that he describes his
22 ideas and to just concentrate on just using very simple
23 language.

24 MR. HANNA: Well, Madam Chair, I'll take
25 your advice as carefully as I can.

1 These are the words of Dean Baskerville,
2 these are the considered words of Dean Baskerville,
3 these are the words scientifically reviewed and
4 published in a scientific literature. I'm dealing with
5 a scientific witness. With the greatest respect, this
6 is Dean Baskerville's words and I'm attempting to use
7 his words.

8 MADAM CHAIR: We're just pointing out,
9 Mr. Hanna, when Dean Baskerville was before us he was
10 able to put his ideas across in a way that was simple,
11 and we're saying that it might help Dr. Eedy if you
12 used that process.

13 MR. CASSIDY: I would point out that I
14 don't think Forestry Chronicle is a scientifically peer
15 reviewed magazine. I may be wrong in that, but my
16 impression is that it's not, I don't think. I know
17 that's...

18 MR. HANNA: This is not from Forestry
19 Chronicle anyways, Madam Chair, the article I was going
20 to refer to, but -- the one by -- the other is.

21 MR. CASSIDY: The one was from Forestry
22 Chronicle, Exhibit 378.

23 MR. HANNA: Whether it's peer reviewed or
24 not, they are Dean Baskerville's words, they are his
25 considered words and they have been seen fit to be

1 published in the scientific literature.

2 And I appreciate what the Board is
3 suggesting to me. I will do my very best, but I see my
4 responsibility to the Board ultimately to be able to
5 make sense out of what may appear gibberish at this
6 point in final argument, and my concern at this point
7 is to ensure that this witness and I have a clear
8 communication and I then at the end of this case have
9 the responsibility to the Board to provide a clear
10 interpretation of what that means.

11 And I appreciate what the Board is saying
12 also that as much as possible it's better if you can
13 follow it as we go, and I will do everything I can to
14 do that, both for the Board and for the witness'
15 benefit.

16 MADAM CHAIR: We are not saying that in
17 any way that your evidence is gibberish, Mr. Hanna,
18 we're saying that we think there are ways of
19 communicating with Dr. Eedy that would speed things up,
20 and you always come directly to the point when you want
21 to very quickly, and I don't think you have to go
22 through Dr. Baskerville's -- the way he puts things in
23 his articles.

24 MR. HANNA: I accept the complement,
25 Madam Chair, for now. Thank you.

1 MADAM CHAIR: Thank you.

2 MR. FREIDIN: Madam Chair, perhaps before
3 we break I can indicate the exhibits that I believe the
4 witnesses and the Board should have and the other
5 parties for my cross-examination.

6 604C which is the ESSA Document from
7 Panel 12/13; Exhibit 726, an article by Folmar; 727, an
8 article by Servizi; Exhibit 729, which is the EPA
9 Registration of Glyphosate; 734 which is an article on
10 NNG; 748, EPA Reregistration Document of 2,4-D; 1222,
11 which is this witness statement.

12 I will be filing or referring to two
13 interrogatories in Exhibit 1232, Forests for Tomorrow
14 No. 2 and 13; 1233 which is the Weeks Report; 1234
15 which is the B.C. -- or British Columbia Report No. 20
16 in relation to 2,4-D or Herbicide Use; 235A which is
17 the pond volume Calculation which was prepared by Mr.
18 Craig.

19 MR. CASSIDY: Is that 1235?

20 MR. FREIDIN: 1235A; 1236 the Record of
21 Decision, Final EIS from the Ozarks; 1237, the final
22 EIS from the Ozarks; Exhibit 712 -- I don't for some
23 reason have a record of what that is.

24 MADAM CHAIR: But you want it, Mr.
25 Freidin? Are you using it tomorrow?

1 MR. FREIDIN: Yes.

2 MR. CASSIDY: He doesn't know what it is
3 but he's going to use it.

4 MR. FREIDIN: If I've got enough
5 paperclips I will, Madam Chair.

6 Exhibit 499 which is a paper by Dr. Euler
7 on wildlife management; Exhibit 310, the Moose Habitat
8 Guidelines; Exhibit 303 the Fish Habitat Guidelines.

9 I will be providing copies of certain
10 pages of Panel No. 7, so I don't think we need to bring
11 that. MNR 9 and 12, they haven't been filed as yet,
12 but I'm going to file them, Interrogatories 9 and 12,
13 and I don't have the volume numbers but I may be
14 referring to my cross-examination of Dean Baskerville,
15 the OFA cross-examination of Dr. Euler in Panel 10,

16 MADAM CHAIR: The OFIA?

17 MR. FREIDIN: OFAH.

18 MADAM CHAIR: AH.

19 MR. FREIDIN: Cross-examination of Dr.
20 Euler in Panel 10.

21 MR. MARTEL: How many days did you say
22 you were going to be?

23 MR. FREIDIN: Two hours, but I may be a
24 little longer. I haven't had any questions since Mr.
25 Hanna started. Volume 123 of the transcripts, and I

1 probably missed a few, but...

2 MR. CASSIDY: Well, in light of that list
3 I'm going to ask for permission of the Board for -- the
4 witnesses have written down this list, I believe, and I
5 am going to ask that they be permitted to immediately
6 contact Mr. Shibatani of my office in the event they
7 are missing any, and he will arrange to get it to them
8 overnight.

9 I just want the Board to be aware that
10 that is the process in light of this rather lengthy
11 list, because I know I don't have it handy here.

12 MADAM CHAIR: Any objections from the
13 parties? (no response)

14 Thank you, Mr. Hanna.

15 MR. CASSIDY: And just a couple of other
16 minor things. I have spoken to Mr. Cosman at the
17 break, I advised him of your intention to start the
18 planning panel on Thursday morning, he indicated he's
19 fully prepared to proceed commencing at 9:00 a.m.

20 I beg your pardon?

21 MR. MARTEL: We can't count on it any
22 longer.

23 MR. CASSIDY: Well, we'll be ready to go.
24 With respect to the article that Mr. Hanna was asking
25 about, I located it - or give credit where it's due -

1 Mr. Shibatani located it during the break, and I
2 provided it to Dr. Eedy and I would like to know if
3 he's in a position to answer Mr. Hanna's question now
4 or whether he needs overnight.

5 DR. EEDY: Well, I'd need overnight.

6 MR. CASSIDY: All right.

7 DR. EEDY: I have gone through most of it
8 and so far all I've seen is the generic term large
9 without any numbers attached to it, and...

10 MR. CASSIDY: That's fine, I just wanted
11 to know.

12 MADAM CHAIR: Is that satisfactory with
13 you, Mr. Hanna?

14 MR. HANNA: Certainly. I'd prefer if he
15 has time to look at it over the evening, Madam Chair.

16 DR. EEDY: There are comments that say
17 smaller woodlands are 40 to 60 hectares, but he doesn't
18 say what large is.

19 MR. CASSIDY: Well, perhaps you can just
20 look at it overnight, that's all I wanted to make sure
21 that everybody's aware that he has it.

22 MS. SEABORN: Madam Chair, I have been
23 asked by one of the intervenors to enquire as to
24 whether the Board intends on holding the procedural
25 session which we have scheduled for tomorrow evening

1 immediately after the evidence which would be at four
2 o'clock rather than five o'clock, so I'll return the
3 call to that intervenor and advise them to be here at
4 four.

5 MADAM CHAIR: Yes, Mr. Martel reminded me
6 of that today, that it will be four o'clock not five
7 o'clock.

8 Now, there may be some problems, I don't
9 know if people are coming in from out of town. If you
10 know of someone who is coming here to talk about that
11 specifically, you might try to get word to them. I
12 doubt -- if they're coming in from out of town, we're
13 not going to be able to get in touch with them between
14 now and then anyway.

15 MS. SEABORN: This is a party in Toronto,
16 so...

17 MADAM CHAIR: All right.

18 MR. FREIDIN: By the way, I just want to
19 make it very clear, I'm not suggesting -- the witnesses
20 can do what they wish. I'm not suggesting that the
21 witnesses read all that material. I intend to refer to
22 very small specific portions of it and be very clear
23 about my questions.

24 MR. CASSIDY: All right. Just as long as
25 we're understood, if there's any suggestion that they

1 should have reviewed a particular portion overnight
2 it's going to be extremely difficult with this list, so
3 I want the witnesses to have some leeway in that regard
4 tomorrow, Mr. Freidin.

5 MR. FREIDIN: Oh yes.

6 MADAM CHAIR: I think we should hire the
7 witnesses some porters, Mr. Cassidy, to bring it into
8 the hearing room.

9 DR. EEDY: I think the Ministry should be
10 paying for the porters.

11 MADAM CHAIR: Thank you. We'll begin
12 tomorrow at nine o'clock.

13 ---Whereupon the hearing adjourned at 4:15 p.m., to be
14 reconvened on Wednesday, June 20th, 1990, commencing
15 at 9:00 a.m.

16 [copyright, 1985]

